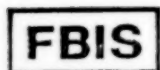


JPRS-UMA-85-031

7 May 1985

# USSR Report

MILITARY AFFAIRS



FOREIGN BROADCAST INFORMATION SERVICE

#### NOTE

JPRS publications contain information primarily from foreign newspapers, periodicals and books, but also from news agency transmissions and broadcasts. Materials from foreign-language sources are translated; those from English-language sources are transcribed or reprinted, with the original phrasing and other characteristics retained.

Headlines, editorial reports, and material enclosed in brackets [] are supplied by JPRS. Processing indicators such as [Text] or [Excerpt] in the first line of each item, or following the last line of a brief, indicate how the original information was processed. Where no processing indicator is given, the information was summarized or extracted.

Unfamiliar names rendered phonetically or transliterated are enclosed in parentheses. Words or names preceded by a question mark and enclosed in parentheses were not clear in the original but have been supplied as appropriate in context. Other unattributed parenthetical notes within the body of an item originate with the source. Times within items are as given by source.

The contents of this publication in no way represent the policies, views or attitudes of the U.S. Government.

#### PROCUREMENT OF PUBLICATIONS

JPRS publications may be ordered from the National Technical Information Service (NTIS), Springfield, Virginia 22161. In ordering, it is recommended that the JPRS number, title, date and author, if applicable, of publication be cited.

Current JPRS publications are announced in Government Reports Announcements issued semimonthly by the NTIS, and are listed in the Monthly Catalog of U.S. Government Publications issued by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Correspondence pertaining to matters other than procurement may be addressed to Joint Publications Research Service, 1000 North Glebe Road, Arlington, Virginia 22201.

Soviet books and journal articles displaying a copyright notice are reproduced and sold by NTIS with permission of the copyright agency of the Soviet Union. Permission for further reproduction must be obtained from copyright owner.

7 May 1985

# USSR REPORT MILITARY AFFAIRS

## CONTENTS

### MILITARY-POLITICAL ISSUES

Lt Gen Volkogonov on Effectiveness of Ideological Work (D. Volkogonov; KOMMUNIST VOORUZHENNYKH SIL, No 2, Jan 85)...	1
Review: Adm Sorokin on 'Great Victory' (A. I. Sorokin; KOMMUNIST VOORUZHENNYKH SIL, No 2, Jan 85)...	12
Lt Gen Naumenko Argues Value of WW II Combat Experience (M. Naumenko; KOMMUNIST VOORUZHENNYKH SIL, No 3, Feb 85)....	18
Review: Wartime 'International Assistance' to Europe (A. Karalyuk; KOMMUNIST VOORUZHENNYKH SIL, No 3, Feb 85)....	27
On 'Partiynost': Criticism Without Self-Criticism (P. Grigor'yev; KOMMUNIST VOORUZHENNYKH SIL, No 3, Feb 85)...	32
People's Control Investigates Artillery Training Equipment (V. Vladimirov; KOMMUNIST VOORUZHENNYKH SIL, No 3, Feb 85)...	39

### MILITARY SCIENCE

Army Gen Obaturov Examines Career of M. V. Frunze (G. Obaturov; KOMMUNIST VOORUZHENNYKH SIL, No 2, Jan 85)....	44
---	----

### ARMED FORCES

Editorial Focuses on Value of Sergeants, Warrant Officers (KRASNAYA ZVEZDA, 10 Jan 85).....	49
Table of Contents: TEKNIKA I VOORUZHENIYE No 12, 1984 (TEKNIKA I VOORUZHENIYE, No 12, Dec 84).....	52

Table of Contents: VOYENNNY VESTNIK No 12, 1984 (VOYENNNY VESTNIK, No 12, Dec 84).....	54
---	----

#### AIR/AIR DEFENSE ~~FORCES~~

Table of Contents: VESTNIK PROTIVOVOZDUSHOY OBORNOY No 12, 1984 (VESTNIK PROTIVOVOZDUSHOY OBORNOY, No 12, Dec 84).....	57
---	----

#### NAVAL FORCES

Rear Adm Kostev Reviews Book on Adm Golovko (G. Kostev; KRASNAYA ZVEZDA, 10 Jan 85).....	60
Table of Contents: MORSKOY SBORNIK, No 11, 1984 (MORSKOY SBORNIK, No 11, Nov 84).....	62
Table of Contents: MORSKOY SBORNIK No 12, 1984 (MORSKOY SBORNIK, No 12, Dec 84).....	64

#### SPECIAL TROOPS

Military Trade: Socialist Competition Challenge (KRASNAYA ZVEZDA, 10 Jan 85).....	66
Table of Contents: TYL I SNABZHENIYE No 12, 1984 (TYL I SNABZHENIYE SOVETSKIKH VOORUZHENNYKH SIL, No 12, Dec 84).....	69
Construction Troops: Plan Fulfillment (V. Aleshkevich; KRASNAYA ZVEZDA, 28 Feb 85).....	71

#### DOSAAB

Methodological Recommendations for Month of Mass-Defense Work (SOVETSKIY PATRIOT, 30 Dec 84).....	72
Improving Rifelry Training (SOVETSKIY PATRIOT, 30 Dec 84).....	74
Fulfillment of 1984 Resolution	74
General Achievements, by A. Gorbachev	75
Belorussian Club, by A. Sibilev	76
Problem: Operating Rifle Ranges	78
Editorial: Summary of 1984 Training Year (SOVETSKIY PATRIOT, 30 Dec 84).....	79

#### MILITARY HISTORY

Lt Gen Sokolov on Liberation of East Europe (V. Sokolov; KOMMUNIST BELORUSSII, No 2, Feb 85).....	82
--	----

Moscow TV Documentary on World War II; Stalin Mentioned (Moscow Television Service, 19 Mar 85).....	92
--	----

## FOREIGN MILITARY AFFAIRS

U.S. Said To Plan Communications Towers To Survive Nuclear War (Moscow Domestic Service, 1 Apr 85).....	94
Contents: ZARUBEZHNOYE VOYENNOYE OBOZRENIYE No 12, December 1984 (ZARUBEZHNOYE VOYENNOYE OBOZRENIYE, No 12, Dec 84).....	95
Lasers in Military Affairs (ZARUBEZHNOYE VOYENNOYE OBOZRENIYE, No 12, Dec 84).....	98
Mathematical Modeling in the U.S. Armed Forces Discussed (D. Sokolov; ZARUBEZHNOYE VOYENNOYE OBOZRENIYE, No 12, Dec 84).....	102
'Deep Attack' in Modern Operation Discussed (A. Slobodenko; ZARUBEZHNOYE VOYENNOYE OBOZRENIYE, No 12, Dec 84).....	110
Use of Night-Vision Devices Discussed (A. Litvinenko, A. Miroshnikov; ZARUBEZHNOYE VOYENNOYE OBOZRENIYE, No 12, Dec 84).....	116
Helicopters' Combat Role Discussed (V. Volin; ZARUBEZHNOYE VOYENNOYE OBOZRENIYE, No 12, Dec 84).....	123
Airfield-Damaging Munitions Discussed (I. Karenin; ZARUBEZHNOYE VOYENNOYE OBOZRENIYE, No 12, Dec 84).....	132
U.S. Seventh Fleet Activities Described (V. Afanas'yev; ZARUBEZHNOYE VOYENNOYE OBOZRENIYE, No 12, Dec 84).....	142
Anti-Ship Missile Employment Discussed (V. Vostrikov, V. Volobuyev; ZARUBEZHNOYE VOYENNOYE OBOZRENIYE, No 12, Dec 84).....	149
Minesweeping With Underwater Vehicles Discussed (P. Mochalov; ZARUBEZHNOYE VOYENNOYE OBOZRENIYE, No 12, Dec 84).....	156
List of the Journal's Publications in 1984 (ZARUBEZHNOYE VOYENNOYE OBOZRENIYE, No 12, Dec 84).....	162
Contents: ZARUBEZHNOYE VOYENNOYE OBOZRENIYE No 1, January 1985 (ZARUBEZHNOYE VOYENNOYE OBOZRENIYE, No 1, Jan 85).....	171

Soviet Armed Forces Praised (ZARUBEZHNOYE VOYENNOYE OBOZRENIYE, No 1, Jan 85).....	173
Western Europe's Confrontation Course Assailed (I. Vladimirov; ZARUBEZHNOYE VOYENNOYE OBOZRENIYE, No 1, Jan 85).....	179
France's Armed Forces Described (N. Frolov; ZARUBEZHNOYE VOYENNOYE OBOZRENIYE, No 1, Jan 85)..	186
NATO's Military Expenditures Itemized (Ye. Nikolayenko, A. Vasil'yev; ZARUBEZHNOYE VOYENNOYE OBOZRENIYE, No 1, Jan 85).....	195
Jungle Combat Practices Discussed (V. Dmitriyev; ZARUBEZHNOYE VOYENNOYE OBOZRENIYE, No 1, Jan 85).....	202
Tank Modernization Developments Described (B. Safonov; ZARUBEZHNOYE VOYENNOYE OBOZRENIYE, No 1, Jan 85, 208	
Developments in Antiaircraft Artillery Described (A. Tolin; ZARUBEZHNOYE VOYENNOYE OBOZRENIYE, No 1, Jan 85)..	214
Maneuvering in Aerial Combat Examined (V. Petrov; ZARUBEZHNOYE VOYENNOYE OBOZRENIYE, No 1, Jan 85)..	223
Use of Phased Antenna Arrays in Modern Radar (V. Pavlov, S. Grishulin; ZARUBEZHNOYE VOYENNOYE OBOZRENIYE, No 1, Jan 85).....	230
'DOBAS-84' Exercise Discussed (M. Men'shikov; ZARUBEZHNOYE VOYENNOYE OBOZRENIYE, No 1, Jan 85).....	237

#### AFGHANISTAN

TASS Cites BAKHTAR on U.S. 'Slandorous Campaign' Against DRA (TASS, 19 Mar 85).....	239
TASS: Kabul Urges End to U.S. 'Interference' (TASS, 19 Mar 85).....	240
TASS Cites KRASNAYA ZVEZDA on U.S. Aid to Afghan Rebels (TASS, 21 Mar 85).....	242
Moscow Says Western Reports on DRA 'Faked Deliberately' (Moscow World Service, 16 Mar 85).....	244

## MILITARY-POLITICAL ISSUES

### LT GEN VOLKOGONOV ON EFFECTIVENESS OF IDEOLOGICAL WORK

Moscow KOMMUNIST VOORUZHENNYKH SIL in Russian No 2, Jan 85 (signed to press 3 Jan 85) pp 8-17

[Article by Lt Gen D. Volkogonov, deputy chief of the Main Political Administration of the Soviet Army and Navy: "More Effective Ideological Work"]

[Text] The party and country have entered a period of immediate preparation for the scheduled 27th CPSU Congress. Work is in progress on the new edition of the Party Program and on the main directions of the country's economic and social development until the year 2000. The party's efforts are now directed at solving fundamental tasks of improving developed socialism, accelerating the social and economic progress of our society and ensuring a better standard of living for the Soviet people.

The Communist Party and Soviet State are having to solve these historic tasks in a complex and dangerous international environment. The actions of international imperialism are today becoming more and more aggressive. The U. S. and its allies are forcing military preparations and trying to change existing parity in armed forces to their advantage. An intense conflict between the two systems is underway.

It is completely understandable that the grandness of the social and economic tasks being solved by the party and people at the present stage of social development, as well as the growing military threat to peace from the U. S. and its NATO allies are determining the content and thrust of the CPSU's ideological and mass political work, including in the army and navy. "Further improving ideological activity and increasing its effectiveness is one of the most important tasks of the party," emphasizes a decree of the June 1983 CPSU Central Committee plenum.

### AN EFFECTIVE FACTOR

More than a year and a half have passed since the June 1983 CPSU Central Committee plenum which developed the concept of ideological work at the stage of improving developed socialism. Its decision is of long-term, strategic importance. It teaches us to see in ideology the spheres of thinking, actions and moral upbringing. In the light of the instructions and directions

contained in the plenum's decisions and in the statements of Comrade K. U. Chernenko, a great deal has been done and is being done in the army and navy to improve the quality and effectiveness of all ideological upbringing work, and turn it into an effective factor in mobilizing the soldiers to solve the tasks facing the Armed Forces. What do I have in mind?

First, the tasks of linking propaganda to real contemporary reality are being accomplished more persistently everywhere. Putting into practice is the authoritative command of the day. It is namely practice which is the sphere in which our efforts are applied and which serves as the highest criterion of effectiveness of ideological work which, as was noted at the recent All-Union Scientific-Practical Conference entitled "Improving Developed Socialism and the Party's Ideological Work in the Light of the Decisions of the June 1983 CPSU Central Committee plenum," must be concentrated on the decisive directions of activity of the party and Soviet people.

The strength of ideological upbringing is also that it is realized in the course of solving specific economic, social, spiritual and military tasks. The more closely that ideological upbringing work is woven into the fabric of production, office work and military activity, the stronger is its influence on the results of this activity and the more significant the progress into people's consciousness, their moral makeup, attitude toward work, manners and customs. Lenin's instruction that it is necessary to teach people "not through books alone, but also by participating in life's daily struggle..." ("Poln. sobr. soch." [Complete Works], vol 10, p 357) means a constant search for specific ways of applying theoretical and political knowledge into practice and people's activity.

Numerous examples could be named on this plane of profound penetration on the part of commanders, political workers and propagandists into questions of combat readiness and the organization of political work with personnel in exercises, firing, flights, missile launches and carrying out combat watch, for example in the Belorussian and Far Eastern military districts and the Black Sea Fleet. The experience of conducting ideological work in a situation most closely approximating combat and in increasing the moral-political and psychological readiness of the men for armed defense of the socialist homeland was noticeably enriched in the course of these exercises.

Second, military soviets, political organs and party organizations have begun to devote more attention to issues concerning the state of ideological work and more systematically and strictly to control the quality of political work and mass political measures. Seeking out and putting into practice scientific recommendations in political upbringing work is underway. The attention paid by commanders and political workers to the organization, ideological content and methods of political training and political, moral and military upbringing has significantly increased. Urgent questions of military upbringing, the quality and effectiveness of ideological measures, active ways of conducting political exercises and other questions are being discussed productively during Marxist-Leninist and commanders' training. Supervisors are participating more actively in ideological work.

Third, problems of propagandizing the foreign policy of the Communist party, providing political information to the personnel and explaining the specific corresponding military-political situation are being better solved. The aggressive actions of reactionary U. S. and NATO circles are being divulged more convincingly and effectively. As is known, the June plenum emphasized that we need a well thought out system of counter-propaganda which is dynamic and effective. Now it can already be said that such a system is taking shape in the Armed Forces. Its foundation consists of sections, commissions, soviets and groups of political organs and party committees, which are analyzing the ideological situation in the context of the ongoing spiritual conflict, studying public opinion, orienting propaganda activists and organizing specific counter-propaganda measures.

The June 1983 CPSU Central Committee plenum required that aggressive counter-propaganda be developed not only on the international arena, but also within the country. Domestic counter-propaganda has the objective of improving the effectiveness of propaganda concerning the achievements of socialism, forming irreconcilability in the Soviet people toward everything hostile and alien and protecting the population and army and navy personnel from hostile bourgeois influences. Foreign policy counter-propaganda is a system of measures of an ideological nature, aimed at disseminating the truth about socialism and neutralizing and uncovering the fantasies of imperialist propaganda abroad. For socialism this is a method of telling about itself and about our way of life, plans and achievements.

As a result of fulfilling the decisions of the June 1983 CPSU Central Committee plenum, today in the army and navy the political and moral condition of the personnel, close cohesion around the Communist Party and its Central Committee, undivided support for the foreign and domestic policy of the Soviet state and conscientious fulfillment of its patriotic and international duty are stronger yet. The actions of Soviet soldiers in assisting the Democratic Republic of Afghanistan are an example of selfless and courageous fulfillment of their international duty.

However, there is no basis for being content with what has been achieved. It is necessary to emphasize with complete certainty that only the first steps have been accomplished in implementing the main instruction of the June plenum -- to bring the content and forms of ideological work into accord with the tasks of improving developed socialism and its armed defense. The main work is ahead. There are still many shortcomings and unsolved problems.

In some large units, units and ships, formalism, sluggishness and red tape are slow to be rooted out of ideological practice, and upbringing measures aimed at ensuring high-quality mastery of weapons and equipment, maintaining them in constant combat readiness and supporting high standards of discipline are not always effective. Formalism is the main enemy of effective ideological activity. It is displayed in many forms: incompetence, the striving to work not for the sake of the cause but for that of the number of measures carried out, and poor focus on the final, positive result.

Some propaganda talks are still characterized by an inability to interest the audience, inexpressive speech, uncultured language and inadequate consideration of the psychological factors of perception. All this reduces

the effectiveness of the ideological influence on people's consciousness. And the partiality for speaking only "from paper" simply clips the wings of public speaking. The lecturer's influence on people is based on direct contact. Propagandists have examples to imitate. Most vivid is the propaganda mastery of V. I. Lenin. His great fervor, logic, passion, keenness and picturesque speech and direct communication with the masses made the speeches of the leader of the revolution exceptionally effective. They sounded like an appeal, an alarm bell. They summoned, mobilized and educated. It is the duty of each army and navy propagandist always to study Lenin's oratorical skill.

In a number of places the activeness and quality of ideological and political upbringing work are low at the battalion-company level; i.e., where military skill, moral and martial qualities and the moral spirit of the men are forged, the cohesiveness of military collectives in squads, crews and teams is formed and the foundations of discipline are laid. It must not be forgotten that there is no periphery in ideological work. The ideas of Marxism-Leninism are important everywhere, in all areas and at all "echelons," but, unfortunately, they are not yet being equally actively implemented.

Thus, the level and effectiveness of ideological and mass political work do not yet everywhere correspond to the requirements of the June 1983 CPSU Central Committee plenum and the directives of the USSR minister of defense and the chief of the Main Political Administration of the Soviet Army and Navy. There remain many weak places, omissions and shortcomings. Our party requires that we work to eliminate them and achieve major qualitative advances in ideological upbringing work.

#### ON THE MAIN AXIS

In accordance with the requirements of the CPSU Central Committee, one of the most important tasks of the Soviet Armed Forces is the reliable defense of the peaceful and creative labor of the Soviet people. Therefore, questions of ideological support of the tasks of combat readiness and troop training must continue to be on the main axis of our ideological work. Filling training and service with high political meaning enables the servicemen to understand and feel the full depth of their social responsibility for security of the socialist fatherland and the whole community of fraternal countries.

Ideological upbringing work must take into account that the combat readiness of units and ships under present conditions has become a factor of tremendous importance, which leaves an indelible imprint on the entire structure, rhythm and features of military service. The entire arsenal of ideological upbringing resources is called upon to bring to the men's profound consciousness and provide moral support for the need for constant high combat readiness. This task must constantly be at the center of attention of commanders, political organs and party organizations.

Stemming from Lenin's postulate that in any war the victor in the final analysis is determined by the spirit of those masses who spill their blood on the field of battle, the party sees the need for the systematic and all-round training of soldiers in peacetime for possible ordeals. It is important that people's consciousness be prepared to spring to the defense of the socialist

fatherland at any moment with weapon in hands and to fulfill their sacred military duty to the end. An indomitable desire to serve the fatherland with honor is one of the most important and general qualities of the Soviet soldier, which is extremely necessary under the conditions of modern warfare.

The most favorable prerequisites for solving this task are created by exercises conducted in conditions most closely approximating those of combat. Therefore, it is very important that our ideological efforts in the course of military training be indelibly linked with concern for high quality field exercises, drills and measures accomplished in the daily stream of army and navy activities. After all, it is clear that even well thought out ideological upbringing work, carried out against a background of poorly organized combat training which has conventionalities and over-simplification will not have the desired effect.

Therefore, it is important to concentrate the efforts of all ideological cadres regarding this question on improving the effectiveness of the training process and on struggling against indulgences in military exercises and tactical, firing and specialized training. For these purposes we should better propagandize the leading experience of commanders, political organs and the party political apparatus of units and subunits. It is important to strengthen attention to the methodological training of officers and to arm them with active methods for ideological work in field conditions, exercises, marches, tank parks and artillery training schools. In connection with this, it would be useful to think about the further development and improvement of the field base of ideological work and to introduce more effective forms of ideological influence on the men.

Improving combat readiness is senseless without further improving the work of mastering modern equipment in army and navy units. This is why we see as one of the main tasks of mass political work mobilizing the personnel and each soldier or sailor to master his assigned weapon and the art of its employment in combat. Solving this task depends largely on how effectively we are able to retain in our field of vision the questions related to mastering weapons and equipment quickly and improving the men's professional training.

Socialist competition in the army and navy, developed in the new training year under the slogan, "To the 40th Anniversary of the Great Victory and the 27th CPSU Congress -- Our Selfless Military labor!" is a powerful incentive in raising the quality of military and political troop training. Competition is able to give an additional impulse to moral incentives, the spiritual activeness of the troops and the development of an active stance on life in each of them.

I would like to stress in connection with this that it is important not only to take into account how specific points of the obligations which provide for extending the ideological and cultural field of vision are fulfilled and moral and ethical norms of behavior are observed, but also how the specific individual manifests his civic position and the qualities of patriot and internationalist and how he fulfills his party, komsomol and professional duty. In this work, the center of our efforts must be right in the company, battery, squadron, ship's department and, in enterprises and construction projects, in the brigade, section and shop.

A most important axis of ideological work has been and remains the struggle to strengthen military discipline. Discipline is known to be a political and moral category. Its highest form, self-discipline, is achieved through ideological upbringing work. This means a degree of consciousness development in which military duty is fulfilled by inner conviction, as a manifestation of moral freedom and the ability of an individual to control himself.

Unfortunately, the state of military discipline and self-discipline do not yet everywhere fully meet the high demands of the day. One of the reasons for this situation is that here and there the organic unity of ideological and organizational work, of word and deed, have not yet been achieved. Comprehensive measures are necessary to strengthen military discipline further. In the spectrum of these measures, propaganda efforts, along with social, organizational and legal measures occupy an important place. We are faced with a great deal of work to improve the moral upbringing role of our way of life, the organization of military service and the daily schedule. Visibility is also extremely important in the struggle against negative phenomena. After all, problems do not disappear because at times we "don't notice" some of them.

In the practice of ideological upbringing work it is necessary to take into account more fully the special features of military collectives and the spiritual, social and other changes in the men which have taken place in recent years. Today's soldiers are, as a rule, yesterday's schoolboys, for whom the process of becoming an individual is still underway. Therefore, it is important for fighters on the ideological front who have dealings with young soldiers to display patience and to utilize most fully the vivid emotional traits of this age: romantic emotion, curiosity, trustfulness and special attraction toward friendship and comradeship. A great deal can be achieved from today's young servicemen, including in questions of strengthening military discipline, by helpful suggestions and concern along with simultaneous steady and calm demandingness.

It is necessary to continue to display constant persistence in realizing the requirements of the party Central Committee to strengthen attention and concern toward each individual, provide the men all types of authorized allowances and medical service in a timely manner, and decisively root out instances of indifference toward people, their living conditions and needs.

In the matter of strengthening discipline, much depends on maintaining in the military collectives a healthy moral atmosphere, which is an important trait of the Soviet way of life. As the moral atmosphere in the collective is, so are relations within it. The moral atmosphere in a cohesive military collective is stable and, if it can be so expressed, influential in the sense of its effectiveness. In a collective where the moral atmosphere is pure the process of forming the individual is always successful.

A healthy moral atmosphere is also characterized by irreconcilability of the members in the collective toward shortcomings and to everything foreign and immoral which at times is still seen in our life. The party teaches that the depth of irreconcilability toward phenomena antithetical to communist morality is indicative of the strength and integrity of the collective and the ability

to form a state of high mutual demandingness among its members in large and small things. In particular, there is a need to strengthen the struggle against instances of affinity toward alcohol. Although these instances are isolated they are intolerable. Drunkenness lays the groundwork for various misdeeds and immoral phenomena. This is especially impermissible under army conditions.

The relationships existing in the military collective are mirrors of the moral atmosphere. They are a concrete expression of socialist social relations as applied to the military area. On their maturity and perfection largely depend the moral atmosphere and level of military discipline, order and self-discipline in subunits, units and ships. Relations in the military collective can be divided into so-called "vertical" links, which express a relationship of subordination -- strict subordination of junior to senior, and "horizontal," which carry mainly a regulating burden in relations among members of the collective having essentially equal official status.

A collective's moral atmosphere largely depends on "horizontal" level relations. Let us take relations among obligated service personnel. Like moral relationships in society and the army as a whole, they are characterized by intimate collectivism, international friendship and mutual assistance. Standout personnel, class specialists and masters of their work enjoy great authority among young soldiers and sailors. These experienced soldiers and sailors have the best influence on the young ones. But, once and a while such unhealthy phenomena are found as mutual back-scratching, a false understanding of friendship and comradeship and attempts by individual soldiers and sailors to emphasize their superiority over their colleagues in an unauthorized manner. And although such manifestations are not characteristic of the overall moral relationships in the military collective, they need to be given a most principled assessment, and all measures should be taken to eliminate them. It is extremely important that the young soldier from his first days of service be imbued with a feeling of worth and honor and a correct attitude toward himself and his surroundings. When an environment of impatience toward any manifestations of haughtiness, coarseness and conceit has been created in the collective, and when commanders and komsomol activists counter these anomalies with the struggle for true comradeship, the moral attitudes of the soldiers will correspond to the principles of communist morality.

Increasing the effectiveness of ideological upbringing measures to further strengthen military discipline is also senseless without ensuring exemplary personal behavior on the part of commanders, political workers and all communists. Therefore, it is so necessary today to continue to inculcate Leninist ethical traits in military cadres and to imbue them with high demandingness toward themselves and for their deeds. It would not be out of place to note that the truly well brought up person is always more demanding toward himself than to those around him. It is important to ensure that each officer and communist understands that he influences the views and frames of mind of people not only through what he says, but also by his attitude toward work and his conduct on and off duty.

## URGENT PROBLEMS OF IDEOLOGICAL UPBRINGING

Among the urgent tasks of ideological work in the Armed forces, first in importance is forming in Soviet soldiers a scientific, Marxist-Leninist world outlook and utter devotion to the party cause and the socialist homeland. And political training is one of the prominent means of forming a communist world outlook and satisfying the spiritual needs of the men.

Since the time of the June 1983 CPSU Central Committee plenum, commanders, political organs and party organizations have worked purposefully to improve the system of political training of army and navy personnel. A definite switch has been made to deeper study of the works of the founders of scientific communism, CPSU documents and decisions and urgent problems of military theory and practice. The ideological and theoretical level and practical thrust of political training have improved. The political, military and moral upbringing of military cadres and improving the political vigilance and combat readiness of subunits, units and ships have received increased attention. The quality of propaganda cadres has also improved and their theoretical level and methodological skill have risen. Problems of improving political training and strengthening its ideological content and influence on the situation in the Strategic Rocket Forces, Central Asian and Moscow military districts, Baltic Fleet and Moscow Air Defense District are being solved successfully. However, at the same time it should be noted that political training has still not achieved that qualitative level and effectiveness which is required of it today.

As the result of what is further qualitative improvement of the men's political training to take place? It is obvious that to a significant extent it must take place through updating political training and intensifying study of the creative contribution made by our party in developing Marxist-Leninist theory in recent years. The role of decisions of the 26th CPSU Congress, subsequent CPSU Central Committee plenums and other party documents, which enriched Marxist-Leninist theory and the practice of building communism with new conclusions and postulates, is exceptionally great in this. Comrade K. U. Chernenko's article, "At the Level of the Demands of Developed Socialism. Several Urgent Problems of CPSU Theory, Strategy and Tactics," published in Issue 18 of KOMMUNIST for 1984, is important in this respect. Materials related to preparations for the 27th CPSU Congress and the development of a new edition of the CPSU Program should have especially profound influence on updating all forms of the men's political training.

Updating the content of political training is meaningless without thorough understanding of Lenin's ideological theoretical legacy. Study of Lenin's works; teachings on defense of the socialist fatherland and on war and the army; and the documents of our party are the foundation of political training for army and navy personnel. This has a positive impact on forming a communist world outlook and ideological conviction in the men.

One way to improve the effectiveness and efficiency of political work is to strengthen its practical thrust and the link between theory and the life of the troops and their concrete activities. The mechanism for linking acquired political knowledge with solving specific practical tasks contemplates that a number of steps will be accomplished. The first is assimilating the required

amount of specific knowledge. The second is forming objectives on this basis pertaining to world outlook and methodology, which define the attitude of the individual toward specific problems, phenomena, events and obligations. The third is implementing this attitude through a required action, deed or behavior. The fourth step is correlating the results of the activity being implemented with the requirements and instructions of previously acquired political knowledge. Much still remains to be done to ensure the constant functioning of this mechanism.

The main thing is to carry out political training and conduct all ideological work in close harmony with the international military-political situation, the life of the country and the accomplishment of the specific tasks of the large unit, unit or ship. Only in this way can we dispense with the separation of political training from the life and activity of the troops and from our army reality, which we find here and there.

In all forms of political training it is important that we seek to have theoretical knowledge transformed into profound personal convictions and manifested in selfless fulfillment of official duties, worthy moral deeds and exemplary behavior. Obviously, in determining and assessing the level and quality of the student's political training it is necessary to take more fully into account its various elements: to assess objectively political knowledge, attitude toward military labor and activeness of stance in life. In our opinion, all of this should lead to improving the world outlook aspect of political training and the men's interest in it, and to overcoming formalism and a superficial and academic approach to the Marxist-Leninist education of military cadres.

We should comprehensively develop mass political work and persistently and consistently implement the directives of the 26th CPSU Congress, the June 1983 CPSU Central Committee plenum and the instructions of Comrade K. U. Chernenko on improving the quality and effectiveness of ideological work. Study of Marxist-Leninist theory, the ideological and theoretical legacy of V. I. Lenin and the historical experience of the Communist Party, and informing the men must be dynamic, purposeful and systematic. It is also important constantly to study public opinion -- the spiritual barometer of the frames of mind of the masses -- in order to make knowledgeable decisions which take into account the broad needs of the men and tendencies of their development. Considerable interesting experience has been acquired in this area by, for example, Transcaucasus Military District political organs.

The system of soldiers' upbringing and propaganda concerning the requirements of the USSR Constitution, the military oath and military regulations require further improvement. Soldiers' upbringing is realized throughout the term of service and most of all in the process of military and political training and the struggle to maintain constant combat readiness of units and ships.

The troops' moral education requires great attention and an able approach. Many discussions about this problem are going on. Just the same, some commanders and political workers do not always understand their role in this matter well and are not able to reach each person. In organizing the men's moral upbringing it is important to take into account that it is not a solitary and isolated process of forming a personality, and cannot be boiled

down to the sum of measures having merely educational objectives. An integrated and well-composed system of deep convictions, firm qualities and stable moral habits is developed only as a result of the comprehensive influence of all formative factors on the soldiers during their entire period of service.

Heroic-patriotic and internationalist upbringing of servicemen and inculcating in them Soviet patriotism (inherent in which are love for the fatherland, inseparably linked with devotion to communist ideals; an international character and purposeful striving for concrete deeds) is becoming especially urgent today. Great opportunities for strengthening this direction of ideological activity are opening up in connection with preparations for the 40th Anniversary of the victory of the Soviet people in the Great Patriotic War, the 30th Anniversary of the Warsaw Treaty and the forthcoming elections to the supreme soviets in the union republics and to local soviets of peoples deputies. It is necessary to concentrate the main efforts in heroic-patriotic education in the low level military collectives and to involve war and labor veterans extensively in this work.

It is necessary to develop in every way the Leninist tradition of constant and mandatory participation of supervisory cadres in the political and military upbringing of the men. It is necessary to reinforce and improve the practice of carrying out unified political education days in troop and naval units, when supervisory officials from military districts, groups of forces, fleets, as well as large units simultaneously appear before personnel in companies, batteries and equivalent subunits during the hours of mass political work.

In solving such an important task as forming a communist world outlook and fidelity to the military oath, one must not forget about developing in the troops steadfast irreconcilability toward imperialism and bourgeois ideology and morals, as to a form of spiritual aggression against social consciousness. Today it is a question only of this: In the military environment there can be no place for political immaturity and naivete or for instances of loss of class feeling.

It is also necessary to devote attention to the problem of improving atheistic upbringing. The party never removed this question from the agenda. It is also urgent now, when imperialism is placing particular reliance in its anti-communist activity on reactionary clerical circles. We must consider this fact in our work of atheistic upbringing and forming in people a scientific and materialist consciousness.

We have our greatest influence on people's consciousness through the vibrant word of the lecturer, agitator and political information specialist. Nothing can replace direct interaction of the teacher and propagandist with people. But today this work is accomplished with reliance on the tremendous power of the mass media: press, radio and television. Television has come to far-flung garrisons and groups of forces. Much is being done to bring technical means of propaganda up to date. And it is the methodological task of the propagandists to supplement and harmoniously combine the vibrant word, conviction and inspiration of the teacher with the tremendous capabilities of the mass media.

In this connection I would like to emphasize that our press must more persistently improve its work of educating and mobilizing people to solve tasks set by the party Central Committee, the USSR minister of defense and the chief of the Main Political Administration of the Soviet Army and Navy. It seems to me that this can be realized by making the content of publications still more relevant to the life of the troops and naval forces, as well as by better integrating highly ideological content with an interesting form of delivery of the material.

Most important in the activity of cultural and educational institutions is for each measure which they carry out to be an effective instrument of communist upbringing of the Soviet soldiers and of raising their social activeness. In connection with this it is necessary to take specific steps to improve the work of Officers' Homes, clubs and libraries and to create ideologically consistent repertoires of ensembles, theaters, all musical and vocal collectives, expositions at military historical museums and rooms of combat glory. We have good examples of the work of Officers' Homes, in particular, in the Group of Soviet Forces in Germany, the Belorussian Military District and several others. However, on the whole, cultural-educational work, especially in units, requires improvement.

Great tasks face military social scientists. They have learned to set forth well and formulate smoothly the urgent questions of social sciences. They are less successful in developing a "mechanism" for implementing ideas and methodological questions for drawing practical conclusions, and in forecasting new, advanced, operative and high quality answers to practical needs. In short, the scientific forces of the social sciences faculties in military VUZes are still indebted regarding practical ideological and mass political work in the army and navy.

One of the most important directions for improving the efficiency and effectiveness of mass political work is further improvement of the system of training propagandists and raising their theoretical level and methodological skill. The word of the propagandist will be truly weighty if he is an example in everything and has mastered the art of propaganda.

As we improve ideological work, we must not forget that with all the colossal might which the Soviet Armed Forces possess as they ensure the country's security, their main element remains the human being: possessed of firm communist conviction, strong will, high professional competence and a rich spectrum of noble moral traits. And such a person is being brought up and will be brought up in the army and navy!

COPYRIGHT: "Kommunist Vooruzhennykh Sil", 1985.

9069

CSO: 1801/175

7 May 1985

## MILITARY-POLITICAL ISSUES

## REVIEW: ADM SOROKIN ON 'GREAT VICTORY'

Moscow KOMMUNIST VOORUZHENNYKH SIL in Russian No 2, Jan 85 (signed to press 3 Jan 85) pp 87-90

[Unattributed review of book "Velikaya pobeda naroda i armii" [Great Victory of the People and Army] by A. I. Sorokin, Moscow, Voenizdat, 1984, 128 pages]

[Text] Voenizdat has published a book by Admiral A. I. Sorokin, first deputy chief of the Main Political Administration of the Soviet Army and Navy, entitled "Great Victory of the People and Army." Its topic is defined in the title itself. This substantive book, written in a vibrant, popular form, demonstrates how the Soviet Armed Forces and our entire multi-national people, under the wise leadership of the Communist Party, gained a world historical victory in the Great Patriotic War.

The book is well planned. Out of the vast number of events comprising the war's history, the main ones were selected, as the chapter headings indicate: "On the Eve of Terrible Ordeals;" "At the Call of the Homeland's Party;" "A Myth Debunked;" "On the Edge of Catastrophe;" "The Invaders Chased Out;" "Great Mission;" "Last Boundary;" "Irrefutable Historical Truth."

Analyzing the international situation in the pre-war years, the author shows the aggressive essence of the two opposing imperialist groupings which existed at the time: Germany-Italy-Japan and Britain-France-United States, which were striving to settle their contradictions at the expense of the USSR. Only Fascist Germany and its allies prepared to enslave the Soviet Union with their own forces, while the Anglo-French-American reactionary circles attempted to achieve their objective through others, by pushing Germany into an attack on our country.

In its turn, the Soviet Union, true to its Leninist foreign policy, persistently struggled to preserve and strengthen peace. In the pre-war years it repeatedly advanced constructive plans to organize a system of collective security and curb the aggressor. However, the bourgeois governments of the European and American capitalist countries, carrying out a policy of encouraging the aggressors, under various pretexts did not embark upon cooperation with the USSR.

Carrying out a struggle for peace, the Communist Party and Soviet State were forced to take care to strengthen the country's defense capability and improve the military power of the Armed Forces. Therefore, the pages which discuss the important measures taken to defend the fatherland, which were taken after the start of the Second World War, are of undoubted interest. Among them are the uniting of the Western Ukraine and Western Belorussia with the Soviet Ukraine and Soviet Belorussia; Bessarabia and Northern Bukovina with the Soviet Union; and the acceptance of Latvia, Estonia and Lithuania into the fraternal family of Soviet peoples as union republics. As a result of these measures, our state borders were extended to the West 200-350 kilometers, a fact which played a large role in destroying Hitler's plans for a "lightning war."

On the basis of specific facts and figures, the author shows convincingly that the creative activity of the Soviet State -- building socialism -- was combined with its defense function. These two aspects in the policy and activity of the CPSU were and remain inseparable. Owing to this approach, much was accomplished in three and a half years of the 3d Five-Year Plan. Capital investment in military industry comprised more than a fourth of all capital investments in industry. In 1939, for example, the output of all industrial products increased by 16 percent, while that of defense industry enterprises rose by 46.5 percent. The number of military products rose by more than a third in 1940. The aviation and tank industries and military ship building rose to a new level, production of artillery and mortar systems increased and large reserves of raw materials and foodstuffs were created in the country. Overall, military industry developed approximately three times as fast as all other industry.

Measures to improve military training; the systems of manpower procurement and organizational structure of the Red Army and Navy, as well as the attention which the party paid to development of Soviet military science; heroic-patriotic upbringing of the workers, most of all youth; and propaganda of our glorious revolutionary, military and labor traditions were reflected in the book.

Although, as the book disclosed convincingly, the party and people did everything possible to increase the defense capability of the USSR in the face of the threat of fascist attack, it was not possible to complete all the defensive measures. Along with other circumstances, this led to an extremely serious situation for our forces at the very start of the war. But the things which were done in the pre-war years decisively predetermined our victory in the Great Patriotic War.

This is the 44th year since that terrible Sunday, 22 June 1941, when a more than 5 million man German Fascist army, equipped with the latest military equipment, perfidiously invaded the territory of the Soviet Union. The Great Patriotic War, which lasted four long years, had begun. It was the main element of the Second World War. It was the bloodiest and most destructive part and on its outcome depended the fate of the Soviet State and of many of the world's peoples.

German Fascism -- the fist of international imperialist reaction -- unleashed aggression against the USSR under the falsehood of a "preventive" war, supposedly undertaken to defend Europe against the "Bolshevik threat," pursued far-reaching purposes. It attempted to seize the tremendous territory and economic riches of our country, eliminate our state and social system and lay the path for its world domination.

At the call of the Communist Party, the Soviet people came as one man to the defense of the freedom and independence of the socialist fatherland. From the first to the last day of the war, there was not any aspect of the struggle against German Fascism which was not constantly in the field of vision of our party and permeated with its genius and will. This is a leading idea which permeates the entire book.

It tells in detail how the party, having developed in the first days of the war a scientifically based program for combatting the fascist aggressor, switched the whole economy to a wartime basis, restructured the work of the Soviet rear, strengthened the Armed Forces in every way, developed the partisan movement on territory seized by the enemy and restructured all ideological-political work. The facts and figures given by the author eloquently tell of the scale of what was done. By the end of 1941, 1523 industrial enterprises, including 1360 major, primarily military industries, were moved from threatened areas to the East and 10 million people were evacuated. By the same time, 291 newly formed divisions and 94 brigades were sent into the active army and more than 2,000 partisan detachments, numbering over 90,000 people were created on enemy occupied territory.

With their courageous struggle on the fields of the fierce battles of 1941, which raged along the whole Soviet-German front, and with their selfless work in the rear, the Soviet people laid the foundation for our great victory. The book tells about the limits of glory and immortality by which the Soviet armies, divisions and regiments spoiled the plans of the Wehrmacht command for "lightning war" against the USSR. These were the battle at Smolensk and the heroic defense of Leningrad, Kiev, Odessa, Sevastopol and Kerch, which demonstrated the high moral-political spirit of the Soviet people and its army and their firm resolve to defend the homeland.

By Autumn of the first year of the war, the main line of military conflict was the Moscow axis. Using a wealth of figures, the author analyzes in detail the situation there, which enables one to understand still more clearly the feat of our army and all the Soviet people at the Battle of Moscow. It was namely on the snow-covered fields outside Moscow that the German Fascist troops, although they were superior in numbers of personnel and equipment, lost in a 20 day November offensive alone more than 155,000 killed and wounded, some 800 tanks, 300 guns and up to 1,500 aircraft.

The counterattack by our forces was crowned with great success and soon secured the turning point in the battle. Hitler's strike groupings were defeated and by January 1942 were thrown out of the capital 100-250 km to the west. This prominent victory was the decisive military-political event of the first year of the Great Patriotic War, the start of the fundamental turning

point and the first major defeat of Fascist forces in the Second World War. The myth of the invincibility of the German Army was debunked.

The Communist Party's wise leadership of the warring country, the indestructible unity of the people and party, the vitality of the Soviet social and state system and the tremendous courage, heroism and selflessness of our troops and rear area workers guaranteed new victories. Soon Stalingrad thundered throughout the whole world. Each hour, each minute of the great battle on the Volga was a heroic feat. The book presents statements of prominent Western state and political figures who evaluated this brilliant victory. And futile are the present vain attempts by falsifiers of various stripes who try to denigrate the victory at Stalingrad, which began the fundamental turning point in the Great Patriotic War and the entire Second World War.

Tracing the successful actions of our Armed Forces in driving the enemy out of Soviet territory, the author devotes particular attention to disclosing such stages in the history of the Great Patriotic War as the Battle of Kursk, the forced crossing of the Dnieper and the Belorussian offensive operation. Numerous vivid pages are devoted to party political work conducted in troop units and to showing the mass heroism of Soviet soldiers displayed in battles with the German Fascist invaders. The tankers in the crew led by company party organizer P. N. Rak, the komsomol infantryman Guards Private Yu. V. Smirnov and the artillerymen of the crew of communist Sergeant Major K. S. Sedov appear before us as courageous and able defenders of the homeland.

Having finished driving the fascist invaders from our home soil, in mid-1944 the Soviet Armed Forces embarked upon their great mission of liberating the peoples of Europe enslaved by Hitler. The author familiarizes the readers with the nature and complexity of the tasks accomplished by the army and navy in liberating Romania, Poland, Bulgaria, Yugoslavia, Hungary, Czechoslovakia and Germany itself from the fascist yoke. The work also discusses the great assistance which the Soviet Union gave in forming, arming and training Polish, Czechoslovak, Romanian and Yugoslav units and large units. The overall numerical strength of foreign military formations formed on USSR territory on the basis of inter-governmental agreements reached more than 550,000 men by the end of the war. A large number of automatic rifles, rifles and carbines, 40,627 machineguns, 16,502 guns and mortars, 1,124 tanks and assault guns, 2,346 aircraft and a great deal of other weapons and military equipment were provided for their arming. This was despite the maximum intensity under which all the Soviet people were operating and the tremendous material difficulties of the time.

The storming of Berlin and liberation of Prague completed the great liberating campaign of Soviet forces in Europe. Hitler's Germany was utterly defeated but the war continued to rage in the Pacific Ocean Basin. Militaristic Japan, the last remnant of the Berlin-Rome-Tokyo axis, having rejected the ultimatum on unconditional capitulation given her by the U. S., Britain and China, attempted with all her forces to draw out the war. Disclosing the situation in the Far East, which was complex and fraught with great dangers, the author shows that the decision of the Soviet government for the USSR to enter the war against Japan was not only in fulfillment of its duty to the allies, but also

served the interests of our state and the need to ensure the security of the Soviet Far Eastern borders. Therefore, the USSR's war against Japan was the logical continuation of the Great Patriotic War.

The book discusses in sufficient detail the problems related to the Soviet Union's preparations for war against militaristic Japan, the course of the armed conflict in the Far Eastern Theater of Military Operations, the realization of the liberating mission of Soviet Armed Forces in Asia and the significance of victory in the Far East, both for our country and for many Asian states.

The document signed on 2 September 1945 on the capitulation of militaristic Japan ended the Second World War. The Soviet people and Communist Party fulfilled with honor the most difficult, but also most noble mission placed upon them by history. They defended the gains of the Great October Revolution and liberated the nations from fascist enslavement. But this immutable truth is today, in the process of the exacerbated ideological struggle, not to the liking of certain bourgeois politicians, sociologists, historians and journalists.

An undoubted achievement of this book is the fact that it rebuffs those who try to distort historical truth. The numerous facts and figures which the author cites irrefutably bear witness to the fact that our country played the decisive role in defeating the Third Reich. The USSR was the main moving force of the anti-Hitler coalition and the standard bearer of the peaceloving peoples who united their efforts in the struggle against fascism. The nature of the Second World War changed completely with the Soviet Union's entry. It turned into a great battle of the peoples for liberation and social progress.

The attempt of bourgeois historiography to conceal or present in a false light the true reasons for the USSR victory and the sources of its might, which are found in the new social and state system resulting from the victory of the Great October Socialist Revolution and the building of socialism in our country, are also conclusively refuted in the book. The author uses convincing examples to show that attempts by aggressive imperialist forces to turn back the wheel of history and to destroy or weaken the Soviet Socialist State with the aid of weapons are groundless. There is no force in the world capable of defeating socialism or stopping the invincible process of historical development. This is one of the main lessons of the Great Patriotic War.

However, the course of recent international events indicates that reactionary imperialist circles, most of all the U. S., are ignoring the lessons of the past war. They are trying to place their main reliance on military force in relations among states with different social systems. With the aid of this force and threats they count on weakening and constricting world socialism and retarding the national liberation movement.

The current tense international situation obligates the Soviet people and army and navy personnel to strengthen the might of our defense capability which, as Comrade K. U. Chernenko noted, is not only the guarantee of the creative labor of our people, but also the guarantee of universal peace on earth. The

concluding chapter, "Always Prepared to Defend the Homeland!" concerns how the Soviet people are fulfilling the order of the leader of our party and the Soviet State.

This book will be of invaluable assistance to commanders, political workers and the broad ideological aktiv of units, ships and subunits in mass political work dedicated to the 40th Anniversary of the great victory. It teaches people to love their homeland, remember the glorious traditions of the Soviet Armed Forces and multiply them with military labor.

COPYRIGHT: "Kommunist Vooruzhennykh Sil", 1985.

9069

CSO: 1801/175

MILITARY-POLITICAL ISSUES

LT GEN NAUMENKO ARGUES VALUE OF WW II COMBAT EXPERIENCE

Moscow KOMMUNIST VOORUZHENNYKH SIL in Russian No 3, Feb 85 (signed to press 18 Jan 85) pp 25-31

[Article by Lt Gen M. Naumenko, doctor of military sciences: "The Invincible Might of an Army of the Socialist Type"]

[Text] During the years of the Great Patriotic War the USSR Armed Forces honorably fulfilled their patriotic and international duty. They defended the gains of the Great October Revolution, defended the freedom and independence of the socialist homeland, freed many peoples of Europe from fascist slavery and made the decisive contribution to saving world civilization from the brown plague. "Victory in the Great Patriotic War," it is emphasized in the CPSU Central Committee decree dedicated to the 40th Anniversary of this remarkable event, "demonstrated the superiority of Soviet military science and military art and the high degree of strategic leadership and military skill of our military cadres." The invincible power of the Soviet Army, an army of a new, socialist type, was graphically demonstrated to the whole world.

\* \* \*

The Great Patriotic War was a most grave test for the Soviet State and its Armed Forces and for all our people. The struggle of the world's first socialist country, unprecedented in scale, intensity and ferocity, against the most reactionary strike detachment of international imperialism -- German Fascism and its allies -- lasted almost 1,500 days and nights. The ringleaders of Hitler's reich, undertaking a perfidious attack against the Soviet Union, intended to destroy socialism as a social system, kill millions of Soviet people, seize the territory of the USSR and lay a path for their world domination.

To achieve its criminal objectives, Fascist Germany prepared an invasion army which numbered 5.5 million men, more than 3,700 tanks, almost 5,000 combat aircraft and more than 47,000 guns and mortars. Hitler's Wehrmacht, the strongest military machine of the capitalist world for its time, was fully mobilized and deployed. One after another the states of Europe fell under its onslaught. It seemed as though there was no force in the world capable of opposing the aggressor, stopping him and defeating him. History placed the

great mission of disrupting the bloody plans of Hitler's invaders on the Country of the Soviets and its army.

The start of the war was extremely unfavorable for the Soviet Armed Forces. The powerful, carefully prepared strike by Hitler's hordes fell upon the Soviet Union suddenly, at a moment when the Red Army was not at full combat readiness and had not completed strategic deployment. Waging fierce battles against superior enemy forces, our troops were forced to withdraw deep within the country. Mortal danger hung over the homeland. Incredible intensity by all the forces of the people and army was required in order, in the extremely difficult conditions of single combat with the enemy, not only to drain the enemy of blood and stop him, but also to achieve a fundamental turning point in the course of the war, seize the strategic initiative and, shifting to a decisive offensive, destroy the fascist beast in his own lair.

The outcome of the titanic struggle between the Soviet Army and the German Wehrmacht was decided not by the temporary advantages which the aggressor had at the start of the war, but by fundamental, constantly operating factors which led to our victory over the enemy. The destruction of Hitler's military machine by the USSR Armed Forces was profoundly natural.

The victory of the Soviet people and its Armed Forces in the Great Patriotic War was natural, first of all, because in this war we were defending the right cause. For the Soviet people and its soldiers this was a war which was highly just, sacred and liberating.

Resolutely opposing the fascist invaders, Soviet soldiers under the tested leadership of the Communist Party selflessly defended the gains of the socialist revolution, Soviet authority and their homeland. On the fields of gigantic battles, our people defended the most advanced social system, their right to freedom, happiness and peaceful labor, and communist creation.

The war's just aims, fervent love of their socialist homeland and the noble ideals of communism inspired the Soviet soldiers to a wholehearted struggle against the hated enemy and to unprecedented feats and mass heroism. Soviet army and navy personnel displayed unsurpassed martial qualities, remarkable models of fulfillment of their military, patriotic and international duty, irreproachable discipline and military skill, courage, valor and selflessness.

In the harsh war years, Lenin's forecast was completely substantiated that "no one can ever defeat that nation in which the majority of workers and peasants know, feel and see that they are defending their own, Soviet power, the power of the workers, and that they are defending that cause whose victory will ensure for themselves and their children the opportunity to use all the benefits of culture and all the creations of human labor" (Poln. sobr. soch. [Complete Works], vol 38, p 315).

The victory of the Soviet Armed Forces in the Great Patriotic War was natural because in the struggle against the enemy our army and navy relied on the socialist social and state system, and on its tremendous socio-political, economic and spiritual possibilities and advantages, which none of the capitalist states had or could have.

The Soviet Armed Forces are an army of a new, socialist type, which is inseparably linked with its people. With their whole appearance and internal essence they reflect the social-political and ideological unity of the classes, social strata and groups in socialist society, most of all the working class and kolkhoz peasantry, and the fraternal unity of equal peoples of the multinational Soviet Union. Our army and navy have derived and now derive their invincible power namely from the midst of the people and the unlimited love of the workers.

Rapid deployment of forces in the active army was implemented from the first days of the war. Whereas at the start of the war the numerical strength of our Armed Forces was 5.4 million men, by the end of the war it reached 11.4 million; i.e., it more than doubled. The might of the Soviet Armed Forces grew steadily during the war, while the forces of Hitler's Wehrmacht declined from month to month.

Voluntary units and large units were formed through the will of the working masses. National formations were created and successfully fought against the enemy. These included three Kazakh divisions, an Estonian corps, and one division each from Latvia, Lithuania, Azerbaijan, Georgia, Armenia and Bashkiria. People's volunteer corps were organized everywhere, through which some 2 million soldiers flowed to the front.

The victory of the Soviet Armed Forces in the Great Patriotic War was natural because the socialist system made it possible to mobilize for the needs of the front the country's maximum economic capability. Under the leadership of the Communist Party, industrial capacities were evacuated in the quickest possible times from threatened areas, the entire USSR economy was placed on military footing, and a steady increase of military equipment and weapons was provided. During the war the number of guns and mortars in the active army increased more than 3-fold; tanks and new types of aircraft 6-10 fold; automatic small-arms more than 30-fold. Already by the end of 1942, Soviet troops achieved 1.5:1 superiority over the enemy in guns and tanks and 1.3:1 in military aircraft.

The enemy attempted desperately to change the correlation of scales of production of military equipment which were unfavorable to him, but all attempts turned out to be futile. The Soviet Army permanently retained its supremacy in guns, tanks, aircraft and other main types of armaments until the end of the war.

Soviet arms and military equipment had better fire and maneuver characteristics, survivability and reliability than those of the enemy. Such types of our arms as the T-34 tank, the IL-2 attack aircraft and the 76 mm division gun embodied the advanced design thinking, skill and selfless labor of engineers and workers.

A great advantage of Soviet Armed Forces was their massive equipping with the famed "Katyushas" -- BM-8, BM-13, M-31 and at the end of the war, BM-31-12 rocket launchers. This was a qualitatively new type of artillery.

The USSR, having 3-4 times less machine tools, metal, coal and electric power, produced overall twice as much military equipment during the war as Fascist Germany and its satellites. From each million tons of smelted steel, we produced 3 times as many tanks and self-propelled artillery pieces as Germany; 3.8 times those of Britain; and 6.3 times more than the U. S.

The exaggerated assessments of the importance of military deliveries by the U. S. and Britain to our country via Lend Lease completely fail to correspond to historical reality. Back in 1944 U. S. President Roosevelt recognized that "The Soviet Union is using arms mostly from its own factories."

In speaking about Soviet agriculture it is necessary to note that even with tremendous losses of sown areas and a big shortage of machinery and people in the villages, during 1941-1944 it provided 4,312,000,000 poods of grain [1 pood = 36 lbs], more than three times that prepared and purchased in pre-revolutionary Russia during the First World War.

The Marxist-Leninist position that the economy of the warring states must not be evaluated only by comparing the figures of its potential capabilities was confirmed with new force. Also exceptionally important is the capability of a state to realize material resources and hidden reserves quickly and most fully, and to use them correctly in the interests of the active army. Social ownership of the means of production; planned centralized organization of the economy; advanced Soviet science and technology and labor heroism of the workers in the rear area, inspired and guided by the Leninist Communist Party, created the stable material foundation of the combat might of the Soviet Armed Forces.

The conflict between the Soviet Army and Hitler's Wehrmacht was also an uncompromising clash of opposing ideologies -- socialist and fascist. Profound ideological conviction and unlimited faith in the correctness of the great cause of Leninism served as inexhaustible sources of the spiritual forces of our people and its army. The spiritual capability of the Soviet soldiers and their ability even under unbelievably grave conditions to preserve their unbending will for combat and victory were incomparably higher than those of the soldiers and officers of the fascist army.

The Soviet socialist system formed a new, highly conscious soldier, who had Marxism-Leninism as his scientific ideology and high communist morality as his morals. The Soviet soldier showed himself to be a true patriot on the fields of combat, not sparing his own blood and life in the struggle for the freedom and independence of his homeland and for a bright future for his people; a consistent internationalist, respecting the national worth and sovereign rights of other peoples; and a fervent fighter for their liberation from the fascist yoke. Despite the fact that Hitler's army and its accomplices brought innumerable calamities and deprivations to our country, the Soviet soldier entered the territory of Germany and her satellites, and the lands of countries enslaved by her, not as avenger and conqueror, but as liberator.

What can the bearers of an ideology of extreme anticommunism, inhumanity, chauvinism and racism counter to our great ideas and our humanism? The fascist state, born of monopoly capital, was a weapon of inhuman oppression of

the workers. It was a terrorist dictatorship of the most reactionary circles of German imperialism, which tried to turn the peoples of the whole world into its slaves.

The race "theory" of the Nazi leaders declared that the German nation was the "master nation," imbued every German with a "consciousness of superiority" over other nations and proclaimed the "right" to rule over them. All of this could not help but corrupt spiritually and morally the German Fascist army as well as substantial strata of the German population, and served to justify the beastly evil deeds of the Hitlerites, and the regime of concentration camps, punitive expeditions, mass killings, plunder, rape and most cruel exploitation of the populations of occupied territories.

The guiding and directing role of the Communist Party was the decisive source of the might of the Soviet Armed Forces and the victory of our people and its army in the Great Patriotic War. Guided by Lenin's teaching on defense of the socialist fatherland, the CPSU worked out a military policy in specific historical conditions; controlled the material and technical equipping of the army and navy; directed their life and activity, military and political training of personnel and party-political work in troop units; and cared for improving the organizational structure of the Armed Forces, training highly qualified cadres and creatively developing military science and military art.

From the first days of the Great Patriotic War, the Communist Party was a truly fighting party, which led the struggle of the Soviet people against the fascist invaders. It was namely the party which unified the country's party, state and military leadership, and turned the country into a single military camp and a stable unity of front and rear, people and army.

Guiding the all-people's struggle against the enemy, the party firmly and consistently implemented Lenin's instruction that "once matters reach war, everything must be subordinated to the interests of war..." (Poln. sobr. soch. [Complete Works], vol 41, p 117).

Party leadership of the structuring of the Armed Forces in the war years and of their military actions in the fronts was characterized by far-sightedness, effectiveness and high scientific basis. This was the reason that the superiority of the socialist military organization over that of Fascist Germany was so convincingly displayed in the war years.

The fighting detachment of the party -- party organizations in the Armed Forces and army and navy communists -- played a tremendous role in the war years. Located on the most difficult and dangerous sectors of the front, communists stood to the death on defense and were first to rise up to attack. Examples of their magnificent courage and selflessness are beyond counting! The staunchness, courage and heroism of communists inspired the million man masses of soldiers to great feats.

Soviet youth acquitted themselves heroically in the war years. Komsomol members in the active army subunits and units were a reliable bulwark of commanders and party organizations, and fought against the fascist invaders with exceptional bravery and valor.

The political workers were the spirit of the Soviet Armed Forces and the ideological fighters of the party. Carrying out party-political and ideological work daily in the troop units and fleets, they armed the men with a correct understanding of the military-political situation and their tasks in destroying the aggressor; strengthened in the soldiers a feeling of love toward their homeland and faith in victory; and inculcated class hatred toward the enemy. The main weapons of political workers, as of all communists in the army and navy, were personal example in battle and the fervent party word.

The fascist army was shattered not only by the strength of our military equipment, the tremendous concentration of the country's material resources, and the spiritual and physical forces of all the people, led by the Communist Party, but also by the high combat skill of the Soviet soldiers and the advanced military art of the Soviet Armed Forces.

During the Great Patriotic War, our Armed Forces conducted more than 50 operations by groups of fronts, approximately 250 front operations and more than 1,000 army operations, enriching military theory and practice with leading models of strategy, operational art and tactics. The experience of battles at Moscow and Stalingrad, in the North Caucasus and the Kursk Salient, and the Korsun'-Shevchenkivskiy, Belorussian, Yassk-Kishinev, Vislo-Oder, Berlin and many other operations are our pride and national achievement, and a priceless storehouse of the Soviet people and its army. Even today this experience largely retains its permanent importance and serves as a reliable foundation for further development of military theory and improving the operational, military and political training and troops and naval forces. Creative assimilation of the experience of the Great Patriotic War, taking into account the present material and technical base of our Armed forces and their qualitative improvement, enables one more rapidly and better to develop military affairs and foresee the nature of future war, and more effectively to improve the defense capability of the country and the military might of the army and navy.

Inherent in the actions of our forces were such traits as high combat activeness, purposefulness, decisiveness and flexibility in selecting the forms and methods of combat actions. The Soviet military leadership solved difficult problems of developing the Armed Forces under the unfavorable conditions of the beginning period of the war, as the troops simultaneously conducted a strategic defense and seized operational and then also strategic initiative. Also solved were problems of rapidly breaking through the enemy defensive lines and swiftly developing success in his depth by committing mobile tank and mechanized large units and formations into the breakthrough.

Soviet military art provided for the capable selection of axes of main strikes and achieving superiority over the enemy on these axes in forces and equipment primarily through bold maneuver from secondary axes; variety in the methods of breaking through the enemy defense with surprise strikes against the enemy; a high level of organization of coordination and command and control; and creative development and originality of operational concepts. The spatial scope of offensive actions by Soviet forces grew constantly during the course of the war. Whereas in the first and second periods of the war strategic

operations were developed on a front of 250-1,000 km and reached depths of 100-250 km, in the third period they were conducted on a front of 450-1,000 km and to a depth of 250-600 km. The rate of advance of our forces also grew: in operations during the third period of the war they reached 15-20 km per day, as opposed to 4-5 km in the first period of the war. The Soviet Armed Forces displayed brilliant examples of carrying out such complex types of operations as encirclements.

True mastery was demonstrated in questions of fire support of troop actions. Such forms as the artillery and air offensive originated in the severe and bloody battles. As a result, high rates of advance of attacking forces and reliable destruction of the enemy were achieved. The constant combination of fire, strike and maneuver even today is one of the immutable principles of offensive operations.

The Soviet Armed Forces achieved a high level during the war in the art of preparing and conducting a defense. As a rule it was characterized by high combat activeness, varied operational formations and great depth. It was namely the active defense by Soviet forces, and their stubbornness and staunchness which made it possible in the first periods of the war to wear out and exhaust the crack large units of the German Fascist Army and thereby create the conditions for shifting to decisive counteroffensives at Moscow, Stalingrad and Kursk, and later even to a general offensive along the whole Soviet-German front.

The practical combat experience in the years of the past war was immediately analyzed and generalized by military theoretical thinking. The conclusions of Soviet military science facilitated the all-round development of military art and each of its components -- strategy, operational art and tactics.

The effective solution of problems of the strategic and operational leadership of the Armed Forces was an important achievement of Soviet military science. The party Central Committee, State Defense Committee [GKO] and Stavka of the Supreme High Command [VGK] firmly and precisely directed the combat actions of the troops and persistently and effectively implemented the plans which had been worked out.

The leadership of the armed conflict was structured on a scientific basis. Based on knowledge of the laws of war and military affairs and correct calculation of the special features of the political and military-strategic situation, the party foresaw the probable course of events and made well-founded decisions. The strategic decisions by the party Central Committee, the GKO and the Stavka of the VGK were based on the stable foundation of Marxist-Leninist teaching about war and the army, and on postulates about the unity of politics and military strategy, with the leading role of politics. A close link with the troops and concern for maintaining the soldiers' high moral and fighting spirit distinguished Soviet strategic leadership.

During the course of the war a remarkable constellation of Soviet military leaders grew up. They painstakingly prepared and successfully carried out front and army operations, during the course of which Hitler's forces suffered grave defeats. A main quality of Soviet military leaders is fervent

patriotism and utter devotion to the Communist Party and their people. The high political maturity, military training and fighting spirit of the leadership cadres of the Armed Forces played a tremendous role in achieving victory.

The military qualities of Soviet soldiers underwent a severe test on the fields of battle of the Great Patriotic War. They proved by deeds their ability to solve the most difficult tasks, both in defense and offense. The skillful actions on the battlefield of infantrymen, tankers, artillerymen, pilots, combat engineers, and men in other branches of arms, and their able use of the weapons and combat equipment entrusted to them, ensured the implementation of the operational and strategic concepts of the command and determined the outcome of battles and the war as a whole.

Soviet soldiers were distinguished by unsurpassed combat training, military gumption, initiative, resourcefulness, mutual assistance in battle, ability to adapt to the terrain, careful regard for their equipment and striving to use fully its fire and maneuver capabilities and fulfill their combat mission at any price.

It is known that the concept of "lightning war" was the basis of the strategy of the fascist leaders. It presumed the use of the factor of surprise, forestalling the enemy in developing combat actions and inflicting converging strikes on him, for the purpose of defeating opposing groupings in detail. Hitler's command placed its main reliance on a powerful initial strike and on massive use of tank and mechanized forces, aviation and artillery on the decisive axes. In the war against Poland and the campaigns in Western Europe in 1940 the German Fascist army succeeded in realizing its strategic plans.

However, in the war with the Soviet Union the strategy of "lightning war" failed. Hitler's army met the stubborn, heroic resistance of the Soviet Armed Forces and turned out to be unprepared for a protracted war. The fallacy of the blitzkrieg strategy was that it did not take into account all the socio-economic, political and strictly military factors which ensure victory in war, and that it overestimated the strength and capabilities of its army and underestimated the enemy. The main reason for the bankruptcy of Hitler's Germany was the unjust, anti-popular nature of the war unleashed by Fascist Germany and directed at destroying the world's first socialist state, seizing and enslaving other countries and peoples and gaining world domination. There are no forces in the world capable of defeating socialism and stopping the progressive development of mankind. The plans of imperialistic pretenders to world domination have always and will always suffer defeat.

\* \* \*

Almost 40 years have passed since the rumble of the great battles of the Great Patriotic War has fallen silent, but time cannot efface the greatness of the feat accomplished by the Soviet people.

The lessons of the war showed graphically that the aggressive designs of the imperialists, if not nipped in the bud, may bring incalculable calamities to

mankind. This conclusion is especially relevant today, in the age of missiles and nuclear weapons.

It must be said, regretfully, that the defeat of Fascist Germany and her satellites taught little to the reactionary imperialist circles in the U. S. and other NATO countries. Using false myths about the "Soviet military threat" and "Soviet military superiority" as a cover, they are again placing reliance on force, and are whipping up an unrestrained arms race. American imperialism nurtures plans for nuclear war against the USSR in the expectation of victory. The deployment in Europe of American intermediate range and cruise missiles, as first strike weapons, represents a special danger.

The Communist Party of the Soviet Union, its Leninist Central Committee and the Central Committee Politburo are vigilantly keeping track of the intrigues of the imperialists. Remembering the lessons of history, the CPSU is steadfastly fulfilling Lenin's behest to be always on guard and to keep its powder dry. Strengthening the defense capability of the Soviet State is an objective necessity of life. The party, USSR government and all the Soviet people display constant concern about the reliable defense of the country and about improving the combat might and combat readiness of the Armed Forces. In a speech at the 15 November 1984 CPSU Central Committee Politburo session, Comrade K. U. Chernenko noted that "we can not help but see the increasing aggressiveness of imperialism and its attempts to achieve military superiority over the socialist community. Our country does not intend to attack anyone. This is clear to every sensible person. But we will strengthen our defense capability, safeguarding the creative labor of the Soviet people and defending the cause of peace."

The building of developed socialism in our country, and the strengthening of the socio-political and ideological unity of Soviet society and the growing capabilities of our economy and achievements of science and technology, have raised to a new level the invincible power of the Soviet army and navy.

The Soviet Armed Forces are fulfilling the great historical mission of defending the gains of socialism and peace in a single rank with the armies of the fraternal socialist countries. And no one must have any doubts that any attempted aggression against the USSR and its allies will meet a crushing rebuff.

COPYRIGHT: "Kommunist Vooruzhennykh Sil", 1985.

9069

CSO: 1801/184

MILITARY-POLITICAL ISSUES

REVIEW: WARTIME 'INTERNATIONAL ASSISTANCE' TO EUROPE

Moscow KOMMUNIST VOORUZHENNYKH SIL in Russian No 3, Feb 85 (signed to press 18 Jan 85) pp 90-92

[Review by Col A. Karalyuk, candidate of historical sciences, of book "V bor'be s fashizmom. (Internatsional'naya pomoshch' SSSR narodam yevropeyskikh stran, 1941-1945 gg.) [In the Struggle Against Fascism. (International Assistance by the USSR to the People's of the European Countries, 1941-1945)], by N. I. Shishov, Moscow, Mysl', 1984, 270 pp]

[Text] The Soviet people and its Armed Forces accomplished a magnificent patriotic and international feat by concluding victoriously the historically unprecedented battle against Hitler's fascism -- the most reactionary forces of imperialism. It states in the CPSU Central Committee decree "On the 40th Anniversary of the Victory of the Soviet People in the Great Patriotic War of 1941-1945," that they made the decisive contribution to defeating Fascist Germany and its allies, liberating the peoples of Europe from fascist enslavement and saving world civilization, and fulfilled with honor their patriotic and international duty.

In my opinion, the book, "In the Struggle Against Fascism," published by Mysl', is the first work in Soviet historiography which systematically discloses the whole complex of measures taken by our party and the Soviet State to give international assistance to the peoples of the European countries in creating military formations, developing the partisan movement, restoring economies destroyed by the war, supplying food to the population and rendering medical assistance. A substantial place in the book is rightly devoted to disclosing the spiritual conflict and to showing the victory of socialist ideology over fascist.

What is attractive about the book?

First is the successful combination of depth and scope in disclosing the questions under consideration. Based on numerous Soviet and foreign sources, it in fact has become a comprehensive work, valuable to a wide circle of readers and especially to the propaganda aktiv.

This book is not only popular, but is also highly scientific. The author begins almost all of its chapters with an informative historical excursion,

and he gives a scientific definition of concepts. Along with a characterization of the general course of events, he shows their specifics at individual stages and in individual countries.

In bringing to light the practical assistance given by the USSR to the peoples of the European states in the battle against fascism, the author convincingly discloses the objective need for this assistance and shows that it was implemented on the basis of Leninist principles of Soviet foreign policy. Back in the first days of the war, Communist Party and Soviet State documents proclaimed the just, liberating and international objectives of the Soviet Union's struggle against fascist aggression. They forecast that the heroic struggle of the Soviet people against Hitler's invaders is inescapably related to the struggle of the peoples of Europe and America for their independence and for democratic freedoms. In a radio address of 3 July 1941, Stalin, the chairman of the USSR State Defense Committee, stated: "The objective of the all-people's Patriotic War against the fascist oppressors is not only the elimination of the danger hanging over our country, but also assistance to all the peoples of Europe, who are suffering under the yoke of German Fascism."

Illuminating in the first chapter the main forms of assistance given by the USSR to the European countries, the author especially notes the fundamental postulate that this assistance was given by our government at a time that it was experiencing colossal wartime difficulties, including during the first months of the war. And it gave this aid exclusively based on inter-governmental agreements and treaties. Thus, the 1st Separate Czechoslovak Infantry Battalion was formed in accordance with the Soviet-Czechoslovak agreement of 18 July 1941. It was the first foreign military formation which was created on USSR territory and took part in combat operations on the Soviet-German front.

On 30 July 1941 an agreement signed between the USSR Government and the Polish Government-in-Exile in London provided for the creation of a Polish army on the territory of our country. And only through the fault of ruling Polish circles, blinded by class hatred of the USSR, did the initial attempts of Polish patriotic forces to create armed formations on USSR territory to fight against the fascist army end in failure. However, in May 1943, at the request of the Union of Polish Patriots, formation of the 1st Infantry Division began, and later that of two armies.

Yugoslav, Romanian and Hungarian military units, large units and formations, and a French Air Regiment, were formed on USSR territory. Throughout the war years, with the assistance of the USSR, there were created and armed 2 combined arms armies, 3 army corps, a tank and an air corps, 30 infantry, artillery, air defense artillery and air divisions, more than 30 brigades, approximately 180 regiments, 9 military schools, 19 officers' schools, courses and training centers, and a large number of separate units.

At the request of patriotic organizations in the European countries, and this is shown thoroughly in the book, the Soviet Union gave all kinds of assistance to the Resistance Movement. Soviet partisan detachments were sent from the western regions of the country into territory of European states; large formations of Soviet partisans conducted raids on Polish territory;

headquarters of the partisan movements in Poland and other states were created with the help of our country; partisan organizing groups were trained in the Soviet Union and sent into Europe; and, finally, according to incomplete data, more than 40,000 Soviet citizens fought in partisan formations and sabotage groups in Poland, Czechoslovakia, Yugoslavia, France, Italy and other European countries.

The second chapter, "On the Principles of Proletarian Internationalism," discloses the decisive role of the VKP(b) [All-Union Communist Party (of Bolsheviks)] in strengthening the military alliance with the other communist parties, and examines their great work in uniting the patriotic forces in their own countries and mobilizing their peoples to destroy fascism and its accomplices in each state. Relying on the methodological tenets of Marxist-Leninist theory, the author shows convincingly the objective need for uniting the international communist movement, and the role in this of the Comintern, the central committees of the communist parties and prominent figures in the international communist movement.

The contribution of many European communist parties in the struggle against fascism and their leading role in creating a broad anti-fascist front was analyzed in the book in adequate detail. Thoroughly understanding the relationship between the struggle for democracy and the struggle for socialism, communists viewed the suppression and destruction of fascism, on the one hand, and the renewal and strengthening of democracy, on the other, as a single problem. They saw that the liberation of the peoples from fascism would begin a new phase of the world revolutionary process. And along with organizing the struggle against fascism, the communist parties continued to work out problems of the Leninist theory of socialist revolution as they applied to the conditions of one country or another.

The book's section on international assistance given to foreign citizens in the USSR (political emigres, refugees, etc.) is read with interest. Here as well the author first shows the legal and juridical basis for solving this question, and then the specific steps taken by our government to receive, settle, support and find work for the citizens of other states. And their number was not small. For example, Polish emigres alone numbered 500,000-700,000 people. The Soviet Government decree on social support was extended even to the families of Polish soldiers who left with the Anders Army. As Ya. Bronevskaya wrote in her memoirs, this was another lesson -- a lesson in generosity which each of us learned frequently from our hospitable hosts.

Persecuted by fascist and pro-fascist regimes, foreign citizens found a second homeland in our country. They saw with their own eyes who is the real friend of the European peoples. "More than shelter, more than consolation and support," wrote (I. Bekher), "was what we Germans, chased out of our homeland after 1933, found in the Soviet Union. It was a "homeland for the homeland," which gave us the opportunity to think seriously about the reasons for our national fall, and at the same time to create the preconditions for the rebirth of Germany in the spirit of humanism and under the banner of true, democratic renewal."

Along with this, our party organized extensive political work among the populations of the European countries which were enslaved by Fascist Germany. The book's third chapter is devoted to its comprehensive disclosure. It consistently brings to light the activity of the Sovinformburo; the Soviet of Military and Political Propaganda of the Main Political Administration of the Red Army; and the buro of propaganda coordination within Sovinformburo.

Political work by our military soviets and political organs among the populations of the European countries substantially intensified with the start of development of the Red Army's liberating mission. At the same time, measures were taken to improve the international education of Soviet soldiers and to heighten their vigilance. Military soviets, political organs and party organizations of units entering the territory of foreign states were guided by the decisions of our party and the State Defense Committee on non-interference in the internal affairs of these countries, respect for their laws, customs and procedures, and preserving the rights of citizens and their property. These requirements, and this is shown convincingly by the author in the book's concluding chapter, were strictly fulfilled on the territory of all the states liberated by the Red Army from fascist enslavement.

As they entered states which had fought against the USSR, Red Army soldiers were not guided by a feeling of vengeance. Brought up by the Communist Party in the principles of humanism, they worthily carried throughout the countries of Europe and Asia the Leninist banner of an army of liberation. The book shows how much Soviet soldiers did to assist the peaceful population and preserve cultural valuables. Owing to the concern of the Soviet military command, thousands of children, women and old people were saved from starvation in many countries, including Germany. The population and wounded prisoners of war were given medical assistance. The history of warfare had never seen such examples of noble conduct by armies on foreign territories.

True to its international duty, the Soviet Union, notes the author, at times denying itself that which it most needed and experiencing deprivations and hardships, shared everything which the population of liberated countries acutely needed, and did so promptly and at times free of charge. This assistance was an integral part of the liberating mission of the Soviet Armed Forces. It played a most important role in the ability of liberated countries to overcome post-war ruin, and was of incalculable importance in protecting their economic and national independence. A stable base for their further development was created in those years.

The Soviet Union paid a high price for bringing the peoples of the countries of Europe and Asia freedom from the German Fascist and Japanese occupiers. More than a million Soviet soldiers perished in battles on foreign territories.

The peoples of the world appreciated the feat of the army of the Land of the Soviets in the Second World war. Political documents and statements of state figures and the words of simple people expressed profound gratitude to the Soviet soldiers. "Those who experienced the Second World War and took part in the anti-fascist struggle," stated G. Husak, CSSR president and general secretary of the KPCh [Communist Party of Czechoslovakia] Central Committee,

"will never forget the exceptional role of the Soviet Union in the struggle for the freedom of peoples, its casualties and the heroism of its people and army. They will not forget that this struggle and the casualties of the Soviet Union made it possible for many peoples to again find their national freedom and state independence, as well as to begin the struggle for the victory of the working class and for the path to socialism."

But not everyone finds to his liking a fair assessment of the international feat of the Soviet Armed Forces. Reactionary historians intentionally misconstrue the objectives and policy of the Soviet Union in the war years, disseminate a false story about the "export" of revolution, state that the Soviet Army entered the territory of the countries occupied by the Third Reich against the will of their peoples, and maliciously distort its relationship with the local population. The main objective of these falsifiers is, first, to attribute predatory aspirations to the Soviet Union, and second, to conceal from the younger generations the decisive contribution made by the USSR in the defeat of fascism, which is well known to the older generation.

The vileness of these inventions, which insult the memory of millions of soldiers of the Land of the Soviets who fell on the fields of battle, is also obvious. All honorable people on the planet reject the evil slander of bourgeois historiography. "Everyone who loves freedom," wrote the well-known American writer, Ernest Hemingway, "has a debt to the Red Army which he will never be able to pay."

The grateful memory of generations will always preserve the fact that namely the Soviet people and its glorious soldiers, by their decisive contribution to the defeat of Fascist Germany and its satellites, opened the way for many peoples to freedom, independence and social progress.

COPYRIGHT: "Kommunist Vooruzhennykh Sil", 1985.

9069

CSO: 1801/184

## MILITARY-POLITICAL ISSUES

### ON 'PARTIYNOST': CRITICISM WITHOUT SELF-CRITICISM

Moscow KOMMUNIST VOORUZHENNYKH SIL in Russian No 3, Feb 85 (signed to press 18 Jan 85) pp 41-46

[Article by Maj Gen P. Grigor'yev: "Do Not Shield From Criticism"]

[Text] The preparations underway for the 27th CPSU Congress prompt all of us army communists to comprehend still more thoroughly that which has been achieved and consolidate the positive. At the same time, preparing for the congress is also the time, as Comrade K. U. Chernenko instructs, to extract lessons from mistakes, analyze shortcomings self-critically, determine ways of overcoming them and, mainly, find ways of solving great new tasks. I would like to talk about taking a critical approach to that which has been accomplished and about how important it is to direct the force of criticism toward improving matters, and to seek with its help to raise the sense of responsibility of communists for maintaining high combat readiness in their units and subunits.

Criticism and self-criticism are an integral part of party life, a powerful means of bringing up cadres and a guarantee of the timely overcoming of difficulties and shortcomings in work. Recognizing and correcting one's own minuses, indicated V. I. Lenin, is a necessary condition for the party's development and combat readiness and a sign of its strength. "There is nothing more vulgar than self-satisfied optimism," wrote Vladimir Il'ich. And life, and the solving of difficult military training tasks under conditions of an aggravated military-political situation demonstrate most convincingly how topical this thought of Lenin's is today.

Increased demandingness toward their own work and toward the results of common efforts is characteristic of the majority of our communists. Take, for example, the unit in which officer A. Davydov is serving. This collective has excelled for several years. Nevertheless, at party meetings CPSU members speak least of all about their successes and achievements. They pose painful questions sharply and uncover shortcomings and omissions in work which interfere with rising to a new level of military skill. This was also so at the last party electoral meeting, at which an atmosphere of high principles and demandingness reigned. Communists spoke with a feeling of healthy dissatisfaction about still existing shortcomings and unexploited opportunities, and introduced proposals aimed at further consolidating and

developing success. The constant exacting approach of CPSU members to assessing their military labor mobilizes their efforts, helps to put into action unused reserves and enables the unit to achieve high indices in combat training year after year.

As we see, our own experience confirms the well-known truth: in those places where communists develop and encourage criticism and self-criticism and draw the appropriate conclusions from it, difficulties and shortcomings are more quickly overcome, military work is more harmonious and better coordinated and military discipline is stronger. And, in contrast, the absence of a critical analysis of military and social activity frequently leads to an individual escaping the control of the collective and being left to his own devices. In this case he displays shortcomings in his work, leading at times to serious failures.

Instructive in this regard is the example of officer V. Ushakov, a CPSU member. Many communists knew that he likes to hit the bottle, sometimes even during working hours. Matters suffered as a result. Lessons were not conducted at the required methodological level and there were many deficiencies in upbringing work with people. And so, did any of the party members condemn the conduct of this comrade? Nothing happened. Moreover, leading communists Lt Col V. Sorokin, Maj V. Timofeyev and squadron party organization secretary Captain I. Pashinskiy essentially took a position of disinterested observers. Thus, speaking at a party meeting V. Timofeyev said: "Is there any point in criticizing Ushakov? After all, he is a good pilot and an able teacher and, it must be said, he is making the right conclusions and taking himself in hand." No, Ushakov did not come to reason on his own. The collective erred in its optimistic prognoses on this score. The pilot finally lost his authority and his skill declined. Yes, and many subordinate officers lost their leading positions in military training. The matter ended with Ushakov receiving strict party punishment and being removed from his duty position.

When one considers facts such as this, one cannot help but conclude that he who protects an individual from just criticism is doing him a disservice. At times this is done for outwardly good reasons: to not embarrass the man or not place his authority in doubt. And it is asked whether it is necessary to publicize an isolated incident, thus washing dirty linen in public.

I recall a party electoral meeting in one of the units. The discussion got around to what had been done and what not done to improve the military training of the missilemen. Seemingly criticism existed and shortcomings were revealed, but no one named specifically those at fault. Things took place like in the well-known story-teller's introduction: "Preserving calm, preserving love, you don't trouble me and I don't trouble you." The meeting ended and Captain M. Nikitenko came up to me and said that today's meeting wasn't very useful. It was hard to make conclusions and none of those who had made mistakes were known. And he began to name the communists who were behind the shortcomings.

I asked:

"Why did you not name them? This is not your first year of service. You've been in the party a good 10 years already and know its requirements well."

He answered:

"What will my opinion change? There are people higher in rank and position. It is handier for them to criticize others."

At the very least this was a strange statement. From it one gets the impression of a person whose principles have become dull, who is accustomed to "not venture out," not enter into conflict with anyone. They will get by, he says, and take steps without me.

Clearly such a position has nothing in common with that of a true party person. Every communist, no matter what position he holds, must unwaveringly fulfill all the demands of the CPSU Charter. Among them, as we know, is this: to develop criticism and self-criticism, boldly disclose shortcomings and seek to eliminate them.

But one can't help but think also about something else here. A critical approach and high principles are not formed all by themselves. For this it is necessary to create a situation of demandingness in the party collective and an atmosphere in which each communist feels great responsibility for his position and has a real opportunity to present his opinions on any question, and boldly oppose negative phenomena and everything which negatively affects combat readiness. And it is necessary to create such conditions first of all at the meetings, where it is necessary to seek a free, comradely exchange of opinions.

We strive constantly to have meetings in units and subunits take place on a high ideological and organizational plane and serve as a good school for the upbringing of communists. We are concerned that in the collective the party council decide the fundamental questions of the life and activity of the party organizations. These are, first of all, the following: fulfilling the requirements of the CPSU Charter; improving the vanguard role of communists in training and service; developing socialist competition; extending and introducing leading experience; increasing the personal responsibility of party members and candidates for military training; and military discipline. As a result, today the activeness of many communists has noticeably increased and there are fewer among them who are indifferent to the affairs of the party collective.

Here is how a meeting took place in the artillery battalion where Captain V. Zavirukhin is party organization secretary. The communists were discussing their role in improving the specialist training of the soldiers. It turned out that Sr Lt A. Akinshev and Sr Lt S. Ryzhiy, both CPSU members, were not examples of mastery of military knowledge. An whole chain of defects resulted from this. The specialists' classes which these communists led were conducted at a low level. The opportunity to develop individual help for those lagging behind was also limited. A sharp, impartial discussion about all this took place at the meeting. These comrades, and several other communists, had to

listen to a number of just criticisms directed towards them and reexamine their attitude toward specialist training.

In developing criticism, the attitude of leaders toward it is of great importance. The life and combat training of our military collectives show convincingly that when, for example, a commander is highly principled and self-critical, people learn from him to reveal fearlessly shortcomings and errors in work. However, a leader who does not support criticism gives a bad example to others. It is namely from the leaders that "most of all depend high principles in posing questions and creating the conditions for frank criticism from below and the effectiveness of measures taken in accordance with the critical statements," it is emphasized in the CPSU Central Committee decree, "On the State of Criticism and Self-Criticism in the Tambov Oblast Party Organization."

Why, for example, in the excellent air defense missile regiment commanded by Col Yu. Orlov, do communists critically assess the results of their military labor? It is because there the commander himself demandingly approaches the evaluation of both his own work and that of his subordinates, and never, anywhere brags about successes. His duty and party conscience tell him that what is good today, tomorrow may already not satisfy increased requirements. Therefore, he does not flatter himself with what he has achieved, but seeks reserves and expects the same from his subordinates.

But, unfortunately, one is also confronted with facts of another sort. Some communist leaders do not desire to examine their own work critically, or publicly talk about mistakes which they have made and draw conclusions. And if certain leaders and communists do not give an example of self-critical analysis of their own work and the situation, and teach others little in this regard, it is, of course, difficult to count on developing criticism from below. Precisely this situation occurred in the party organization led by Major N. Pan'kiv.

Throughout the entire past reporting period, officers Yu. Sidorkin and N. Pan'kiv barely spoke at the meetings about the shortcomings in the units subordinate to them, saying nothing about the mistakes of members of their own organization, including communist leaders N. Makovets and M. Davidchenko, who were not distinguished by a thoughtful approach to work with people. And is it not true that if a leader lacks the courage strictly and demandingly to examine his own activity, and if he considers criticism useful only for others, then his calls to "develop criticism" will not find the required response?

It also happens that some leaders who acknowledge criticism verbally do nothing in practice to eliminate shortcomings. For example, speaking at a party meeting, Major A. Semenov, a subunit commander, stated in self-criticism that an unsatisfactory evaluation once received by the subunit was most of all the result of poor tactical and specialized training of the personnel. "Here I also am largely to blame," he stated. He gave his word to correct the situation by the end of the year. In the subunit, he said, there is every opportunity to improve the level of combat readiness, eliminate existing shortcomings and fulfill the commitments made. It was thought that Semenov

had drawn the correct conclusions and that now matters would be corrected. But it was not so. It turns out that the officer was not accustomed to "beat himself in the chest," but did nothing to improve military training or strengthen discipline. And is it surprising that the battalion ended the year with a low evaluation?

In connection with this I would like to say the following. Criticism and self-criticism are not parade dress, which is used only for going to conferences and meetings and then forgotten until the next appropriate occasion. It is a constantly operating means, and it can have the required effect only when it is organically fused with active and persistent work to eliminate detected shortcomings. I write this because we still have frequent instances when the very same shortcomings are criticized numerous times, and discussed at each scheduled meeting, but the defects continue to exist. It is also no secret that some party committees and buros frequently make decisions, rather long intervals of time apart, which resemble each other as two drops of water. In them are noted the very same shortcomings and outlined the same measures as before. The whole crux is that often lively organizational work to fulfill decisions once made frequently does not follow, and no real demands are made upon each individual for matters entrusted to him.

This is why it is so important in my view that criticism not be limited to a mere statement of shortcomings, but reveal their causes, indicate correct ways of eliminating them and prevent the appearance of new errors. Listening to reports of communists in party organs helps to achieve this. I cannot say that this form is new, but no one can doubt that it is effective. We earlier recommended listening to reports of CPSU members on various questions. Then, studying this practice, it was revealed that in some places reports or accounts of many workers were being heard in a short period of time. There is little benefit from a love for quantity in this matter. Therefore, it was necessary to make certain adjustments. We posed the task: Listen to people's reports if it is necessary to impact on improving their political and professional activeness. It goes without saying that particular importance is given to principled criticism at such hearings. After all, otherwise it is difficult to make a party assessment of shortcomings and omissions.

Thus, last year at the electoral party meetings in the unit in which Major A. Volozhanin is serving, communists expressed serious concern about the lagging of soldiers in specialist training. The political department carefully analyzed the existing situation, clarified the reasons for the omissions, and thought through how to eliminate the shortcomings. It also envisioned listening to reports of secretaries about how the party organization helps the commander raise the quality of the training and education process. For example, a report by Sr Lt V. Astakhov was heard on this question. A critical assessment of the activity of party organizations helped to see what was concealed behind overall seemingly normal work. For example, it became clear that communist leaders majors V. Grishko and V. D'yachikhin had ceased being concerned about high quality lessons and prepared poorly for them. There were significant shortcomings in the lessons of the technical circle led by Lieutenant M. Mal'gin. Lt Col K. Krasovitskiy, deputy unit commander for armaments, knew about all this but did not take the necessary steps. Intervention by the political department and staff helped to

eliminate many of these shortcomings. The critical frame of mind with which we looked at disruptions in the unit's training process and thorough analysis of their causes helped, as one might have reason to believe. The communists' feeling of responsibility for affairs in the subunit noticeably increased. Now the level of specialist training of personnel in the battalion has become significantly higher than before.

The development of criticism and self-criticism is meaningless without its broad visibility. In the visibility of party criticism and self-criticism is found its strength. Criticism of mistakes and shortcomings, disclosing their causes and taking the necessary measures help party and non-party masses in the future to avoid mistakes and apply their efforts more efficiently and effectively. "Only wide visibility," taught Lenin, "directs all straightforward, one-sided and capricious deviations into useful and necessary material of party self-education."

There is constant concern about such an atmosphere in the collective where officer M. Klyukach is serving. There all critical remarks and suggestions made at party meetings and party buro sessions are carefully taken into account. A plan is made concerning how shortcomings which have been disclosed are to be eliminated. After a certain period of time all communists know about this. They are constantly involved in how a given shortcoming is being eliminated or suggestion is being implemented. The party organization is concerned that each CPSU member not be a disinterested observer, but an active participant in this work. In the final analysis, all this has a beneficial influence on the state of affairs and improves the level of military and political training. The best confirmation of this is the fact that the collective has over a long period of time had high results in training.

Officers in the political sections can and must have an important impact on forming an atmosphere of demandingness and high principles in every party collective. They are regularly in the subunits and constantly guide the activity of party organizations. In connection with this it is natural that the question arises about the style of work of political organs. And this style is not without serious shortcomings. Take, for example, the same incident with Lt Col Ushakovyy about which we already spoke. It is amazing not only that such a thing happened with a communist and excellent pilot. Frequently officers from the unit political section, Lt Col V. Sorokin and majors G. Sergeyev and V. Ruslyayev, visited the subunit, but did not make the necessary conclusions for the critical situation. Yes, and how could they make them, if they did not delve deeply into the life of the party organization? Otherwise they, no doubt, would have known about the true state of affairs and the condition of criticism and self-criticism.

It is important that the voice of criticism not fall silent, but sound constantly in all collectives. It is well known that even in good collectives if shortcomings are hushed up even serious failures may appear.

On the other hand, leading military collectives and those soldiers who excel in military labor unquestionably must be made examples to which the other soldiers must be compared. But pointing people out is not the same as glorifying or excessively praising them. This engenders complacency and

conceit and has a negative effect on the men. Something of the sort occurred in the subunit where Captain A. Kandaurov is party organization secretary. For three years the battalion was excellent. Last year the men took on the commitment of confirming the title of excellent battalion for the fourth time. However, self-assurance and indifference led to a situation in which the party organization overlooked in its work questions of the professional training of leading specialists and did not pay attention to inculcating in them high moral and military qualities. As a result the battalion received an evaluation of "satisfactory" and lost its position. This was largely because the dust of laudatory words blinded the communists to shortcomings.

"Today the most important criterion of party-mindedness is not only how a communist works and conducts himself," stated Comrade K. U. Chernenko at the 15 November 1984 CPSU Central Committee Politburo session, "but also how resolutely and actively he struggles with shortcomings and seeks an overall improvement in the situation."

The attitude taken toward criticism and ability to accept it properly and approach one's own work critically is a sign of the maturity of communists and of the political and moral health of any party organization. This is why it is so important to bring up each communist and party leader in the spirit of criticism and self-criticism. And, of course, it is impermissible to shield anyone from criticism.

COPYRIGHT: "Kommunist Vooruzhennykh Sil", 1985.

9069

CSO: 1801/184

## MILITARY-POLITICAL ISSUES

### PEOPLE'S CONTROL INVESTIGATES ARTILLERY TRAINING EQUIPMENT

Moscow KOMMUNIST VOORUZHENNYKH SIL in Russian No 3, Feb 85 (signed to press 18 Jan 85) pp 47-50

[Article by Major V. Vladimirov: "In the Interests of Combat Readiness"]

[Text] At a meeting of the party committee of the "N" artillery regiment, a discussion was underway about how to improve artillery firing training by means of party influence. The need for this was urgent. During routine field firing several crews demonstrated poor training. It turned out that the skills of some artillerymen in working on the equipment were not firm. They operated without confidence and frequently committed minor mistakes in fulfilling the norms. But these very "trivialities" substantially influenced the results of firing.

What was the matter? The party committee members knew that the soldiers' theoretical training was good, and that the battery commanders, the majority of whom were communists, were making considerable efforts in this regard. But as for training on the equipment, party members believed that here there were flaws. Even earlier there were signs that practical training was not having the required effect, and was not helping to consolidate knowledge obtained in the lessons. An opinion was given that one of the reasons for this situation involved shortcomings in the content and use of the training material base. Was this really true? Members of the people's control group headed by Major V. Orekhov had to clarify this.

The people's controllers, Major V. Gorbach, Captain K. Maslov and the others, were conscientious about their task. First they carefully studied the guidance documents which defined the procedure for maintaining and using the training material base. Then they looked into how it was being used. And what was discovered? Several simulators, which might have been a reliable help to the troops in improving their skills, turned out to be unserviceable. The condition of the artillery range also left something to be desired. Its equipment kept on going out of order. Many hoists, for example, needed repair, and out of four training guns only one was operating. And it had happened repeatedly that soldiers from one or another subunit arrived at the range but were not able to train due to problems with the equipment. Understandably, this negatively affected the quality of the exercises and, in the final analysis, the level of the artillerymen's training.

All of the shortcomings unearthed by the people's controllers were explained primarily by passivity and an irresponsible attitude toward their duties on the part of comrades who were charged with improving the training material base and its proper maintenance and use. For example, Major A. Pis'yaukov, a CPSU member, deserved serious criticism. He was little interested in the condition of training classes, simulators and the artillery range, or how they were being used, and did not eliminate shortcomings in a timely manner.

During the course of their checking, the people's controllers talked with many servicemen, including those who maintained the simulators, various devices and mechanisms capable of improving the military training of the artillerymen, as well as with subunit commanders and crew members. All were reminded of the importance of a caring, proprietary attitude toward the training material base.

The people's controllers reported the results of their check to the unit commander. He took appropriate measures. For its part, the party committee was also included. At one of its sessions the report of communist Major A. Pis'yaukov was heard concerning his fulfillment of his party and professional duty. Party committee members made numerous criticisms of him, pointing to his lack of administrative abilities, absence of control and lack of initiative. The party committee discussion was not without its effect, either on the officer himself, or on other comrades having responsibilities toward the training material base. Many then drew serious conclusions and made efforts to correct matters in this important area of the struggle for combat readiness.

The people's control group is making its contribution in the struggle to improve the quality and effectiveness of the training process, military skill, economy and thrift, and improve the soldiers' living standards. The commander and party committee display constant concern here about improving the activity of the people's controllers. It is well known that in his speech at the All-Union Conference of People's Controllers, Comrade K. U. Chernenko stressed that the party and state view people's control as a most important area of party-wide and state-wide matters, and daily help to it as one of their crucial tasks.

The party committee keeps the activity of the people's control group in its view and watches over it, so that the controllers fulfill their duties conscientiously, with the high principles and business-like attitude appropriate to party members. Periodically at its meetings the party committee hears reports of the communist controllers about how they are fulfilling their important party assignment, what problems they have been able to solve, and in what they require help. A useful discussion took place in this regard at the session in which the report of CPSU member Captain V. Molochko was heard. His high degree of professional training and activeness help him overall to handle the duties of controller. In preparing to check some area he carefully studies everything which concerns the substance of the questions being checked. In short, he is a conscientious man. But at times he is impetuous. He sees disorder and begins to become angry and may use sharp words. He gets upset and people become nervous.

Clearly, along with high principles, attentiveness and tact, good-will and useful recommendations are also needed. All this was told to Molochko.

While discussing the communist's report, the matter of the need for more purposeful training of patrol members came up. They attend seminars and classes in the school of people's controllers. Reports, lectures, sharing working experience and other forms of training, organized by the political section, help to form high ideological and political qualities in the patrol members, expand their field of vision, and inculcate high principles and irreconcilability toward shortcomings. But experience shows that the people's controllers need more frequent classes, especially those on the practical organization of checks. And here training people's patrol members right in the regiment could play a big role. How could this be set up?

The thought occurred to organize people's controllers circles in the unit. The party committee deputy secretary became their leader. Specialists in various services were charged to conduct classes in them. And it must be said that there was definite benefit from the classes. People's patrol members became more deeply involved in the situation in a particular area, and began to conduct better checks.

They pay particular attention to questions concerning the care, maintenance and high combat readiness of weapons and equipment. Thus, during the period of preparation for a tactical exercise, members of the people's control group checked the status of combat equipment. On the eve of the exercise they were briefed and studied the appropriate regulations and instructions.

The people's patrol members uncovered a number of shortcomings in the condition of equipment. Some of them were immediately eliminated on the spot. The controllers reported to the commander and widely informed the personnel about the results of the check. In accordance with the instructions of the regiment commander, additional classes with driver-mechanics of self-propelled guns were held on the mechanical aspects of the equipment. The party committee organized talks in the subunits on "Concern About Equipment -- Concern About High Combat Readiness," and "Special Features of Using Combat Vehicles Under Field Conditions." Party activists and technical services officers conducted them. The command and party committee also took other steps to improve the quality of equipment maintenance and successfully prepare it for the exercises. To a great extent all of this pre-determined the success of the artillerymen in solving military training tasks.

Control is often called a critical area of work. After all it touches officials in a moral, and often also in a material, respect. It is completely understandable that the principled position of the people's controllers is not to everyone's taste. And the unit's people's patrol members adhere to precisely this position.

On one occasion members of the people's control group were checking the individual equipment in one of the companies. They saw, to be frank, an unsightly picture. The subunit first sergeant, Warrant Officer M. Kupriyev, had neglected to take stock and closed his eyes to the fact that some soldiers did not take care of their equipment and, at times, caused it to become

unservicable. Equipment shortages were also uncovered. And the company commander never once found time to see how his first sergeant was taking care of the subunit's equipment. Usually he asked whether everything was in order. In answer he heard: "In complete order." With this he was satisfied.

After the check the safekeeping and care of the individual equipment somewhat improved. But, as it later became clear, not for long. After some time had elapsed the patrols against visited the company. And what did they see? The same discrepancies. And Warrant Officer M. Kupriyev had not lifted a finger to eliminate the shortcomings. As a result of the second check the unit commander took strict measures. Those at fault were punished.

Once patrols had an impartial discussion with one of the officers who filled his personal vehicle with fuel in the unit. At the suggestion of the people's controllers the officer reimbursed money for the expended gasoline. The commander and party organization made a principled assessment of the fact disclosed by the people's controllers. Also punished were those comrades who could have stopped the unlawful actions but did not do so. On the recommendation of the party committee and subunit party organizations, the secretaries held discussions with communists on the duty and honor of a party member and the need to follow the requirements of laws and norms of communist morality in everything. People's control group members V. Orekhov, V. Gorbach and N. Krylach organized a number of talks with the servicemen on the economical use of gasoline and other types of fuel. Certain work was also done aimed at improving the fuels and lubricants services.

Of course, those guilty of unlawful actions in all cases must get what they deserve. Nevertheless, the efforts of people's patrol members are aimed mostly at nipping shortcomings in the bud. Therefore, members of the people's control group consider it their duty to participate actively in preventative work. They pose urgent questions at open party meetings. They help komsomol activists carry out discussions about thrift and economy at komsomol meetings. They also take care to see that questions of improving the use and safekeeping of equipment, conserving materials and other questions are widely reflected in visual agitation. Through the efforts of the patrol members the results of checks become known to the whole collective. People know specifically those who are at fault, and also see how the struggle against shortcomings is going, and they take an active part in eliminating defects.

Members of the people's control group also make a big contribution to propagandizing that which is new and advanced, and which has originated from life itself. For example, in the course of one of the checks of the training material base, the controllers saw how ably platoon commander Sr Lt I. Brednev made use of training aids. They also knew something else. Another subunit commander fights to get training aids, so that they "work" to improve the knowledge and skills of his subordinates. But in fact it frequently happens differently. Soldiers make training aids and they are soon forgotten. In Sr Lt Brednev's platoon, as nowhere else, the returns from the use of training aids are high. The subordinates of this officer know the equipment better and have more solid skills of working with it. That is why the people's patrol members, for their part, did a great deal to see that the experience of platoon commander Brednev became the property of the other officers.

Along with the positive aspects of the activities of people's controllers in this unit, there are also shortcomings. For example, not all people's control posts work with the necessary initiative and effort. It happens that comrades see mistakes and violations and do not react to them. And their explanation is that there is, after all, a people's control group. It, they say, will conduct a check and report to the commander. Of course, group members, if required, look into the situation in the area being checked. But why is the people's control post inactive and why doesn't it take the necessary steps?

Patrol units do not make use of their opportunity, with the commander's permission, to include in checks specialists who are not people's control organ members. And, after all, their qualified opinions and recommendations could substantially help matters.

The interests of combat readiness demand that the unit's people's patrol members function still more energetically, knowledgeably accomplish checks; display irreconcilability toward shortcomings, and thereby facilitate a further improvement in the military skill of the artillerymen and their successful fulfillment in the new training year of the tasks of military and political training.

COPYRIGHT: "Kommunist Vooruzhennykh Sil", 1985.

9069

CSO: 1801/184

MILITARY SCIENCE

ARMY GEN OBATUROV EXAMINES CAREER OF M. V. FRUNZE

Moscow KOMMUNIST VOORUZHENNYKH SIL in Russian No 2, Jan 85 (signed to press 3 Jan 85) pp 18-25

[Article by Army Gen G. Obaturov, chief of the Military Academy imeni M. V. Frunze: "Illustrious Military Commander of the Leninist School"]

[Excerpts] Army and navy troops and all the Soviet people are marking the 100th Anniversary of the date of birth of M. V. Frunze, prominent revolutionary and talented military commander of the Leninist school. Great were his services to the Land of the Soviets and our Armed Forces.

Mikhail Vasil'yevich Frunze was born on 2 February 1885 in Pishpek (now Frunze) into the family of a doctor's assistant. Having finished secondary school with a gold medal, in 1904 he entered the economic section of the Petersburg Polytechnical Institute. In connection with breaks in his studies occasioned by his revolutionary work, he completed the institute's program independently and passed the examinations.

In his 19th year, in November 1904, Frunze joined the RSDRP [Russian Social Democratic Workers' Party]. The young Bolshevik chose service to the working class as his main goal, and did not retreat from it throughout his short but brilliant life.

Even a brief examination of his accomplishments in the fires of three revolutions gives an impression of him as a prominent Leninist revolutionary, organizer and leader of the working class struggle.

Under the leadership of M. V. Frunze, the Ivanovo-Voznesensk Province party organization [to which he was sent by the party in March 1918], carried out great work in solving most difficult questions of providing food for the population and fuel and raw materials for industry. Despite all of his varied work, Frunze devoted great attention to military questions, since they were of priority importance. V. I. Lenin then stated: "...a firm and strong army is needed for defense..." Frunze provided for the creation and training of volunteer detachments and Red Army units, which were immediately sent to the front. In August 1918, the Ivanovo-Voznesensk Province party conference recommended Mikhail Vasil'yevich, as a man having great organizational abilities and military experience, to the post of military commissar of the

Yaroslavl' Military District, where he simultaneously became chairman of the RKP(b) [Russian Communist Party (of Bolsheviks)] province committee. This district encompassed eight central provinces and played an important role in the defense of the young Soviet republic. Here M. F. Frunze did a great deal to man and train new Red Army units. By order of the Republic Revolutionary Military Council on 26 December 1918, Frunze was named commander of the 4th Army, Eastern Front. So began his military command activity, which was crowned with brilliant victories and placed him first in the ranks of proletarian military commanders of the Leninist school.

M. V. Frunze was an educated man in the military field. This resulted from a combination of two circumstances. First, his interest in military affairs, displayed since his youth through reading books on military history and then also by experience in armed conflict acquired in three revolutions. Second, by thorough study of the views of Marx, Engels and Lenin on military questions, as well as the works of the great Russian military commanders and prominent military theoreticians. Knowing several foreign languages, Mikhail Vasil'yevich read many works of military science by foreign authors. Thus, Frunze had prepared himself for military activity throughout his entire past life.

After the end of the Civil War, military work occupied the main place in Frunze's varied activities. In posts entrusted to him by the party -- from commander of armed forces in the Ukraine and Crimea to chairman of the USSR Revolutionary Military Council and people's commissar for military and naval affairs -- he made a major contribution to building the Soviet Armed Forces.

Practical experience in creating the first Red Army units, and in its development in the years of the Civil War and the first post-war years, gave Frunze the opportunity to develop further and apply in practice Lenin's principles for building the socialist army in inseparable unity with the principles for building the party and state. The role of the Communist Party in building the army and in all of its activity was the chief and determining of these principles. It was necessary for Frunze to defend this principle in the struggle with the Trotskiyites, who rejected the need for party leadership in the army and tried to lead cadres away from Lenin's path of building the army and navy.

M. V. Frunze did a great deal to develop and apply the principles of inseparable unity of the army and people, the class approach to manning the Armed Forces and the friendship of peoples and proletarian internationalism.

Among the organizational principles, Frunze attributed great importance to working out and then introducing the principle of sole responsibility which Lenin substantiated, applied on a party foundation. He contributed greatly to working out such principles as retaining a standing cadre army; centralized command and control; high conscious discipline; and providing for and maintaining constant combat readiness of the socialist army.

Among the many tasks of military construction which Frunze was involved in solving, the military reform of 1924-1925 carried out by party decision occupied an important place. Frunze was in charge of its development and

realization. In the reform process, territorial troops were introduced along with cadre forces; national formations were created; the central army and navy organs were reorganized; the standard organizational structure of troop units and work of the rear were put in good order; restructuring of the cadre training system was begun; and work of ideological-political upbringing of personnel and introduction of sole responsibility was greatly improved.

In 1924-1925, the Main Commission on Regulations, which Frunze headed, developed general military and combat regulations for the Red Army.

From April 1924 through January 1925, Frunze was chief of the RKKA [Workers' and Peasants' Red Army] Military Academy. He carried out tremendous work in this post. At the initiative of Mikhail Vasil'yevich and under his leadership, the structure of the academy was improved, the programs and methods of training were changed and field exercises were introduced. Political education occupied an appropriate place. In particular, a faculty of party and political work was created.

M. V. Frunze was a major military theoretician who made a great contribution to the development of Soviet military science and military art. His military-theoretical activity embodied thorough knowledge of Marxism and military affairs and tremendous experience in the Civil War.

Selecting the ways and methods of constructing the military system demanded scientific inquiry. Therefore, Mikhail Vasil'yevich Frunze combined his daily work of reorganizing and building the Red Army with active work in military science. The foundations of military scientific work in our army were laid under his leadership. Frunze also devoted considerable attention to questions of Soviet military construction and of substantiating the special features of wars in defense of the socialist fatherland and the role and relationship between men and equipment in war. His works, which summarized the experience of the First World War and Civil War, were devoted to this. He thoroughly applied the provisions of Marxism-Leninism to analyzing the problems of the armed defense of socialism. This was his main contribution to the development of Soviet military science. He understood that the experience of wars teaches, and life demands, that the country have united views on the nature of war and on building the Armed Forces. For this a single military doctrine was needed. He devoted all his talent and experience to developing this. He first disclosed the two aspects of military doctrine -- political and military-technical -- with the leading role of the former. He substantiated the fact that the vitality of military doctrine depends on its strict correspondence with the overall objectives of the state and the material and spiritual resources which it possesses.

Defining the nature of war in defense of the socialist fatherland, Frunze instructed that it, as a revolutionary and class war and a war between countries of the two social systems, will be uncompromising and decisive and will involve the whole nation, multi-million man masses of people and all state and social interests. Such a war will be protracted. At the same time it will be based on machines and require mobilization of the whole economy.

The machine oriented nature of war obligates the Soviet State, to the limit of its economic capabilities, to solve as one of its most important tasks, that of technical equipping of the branches of arms, especially armored forces, aviation and the navy, as well as strengthening the rear area, the role of which has sharply risen. At the same time, M. V. Frunze opposed overemphasizing the importance of equipment in war. He explained that even in machine oriented war man continues to play the decisive role, for equipment without man is meaningless.

Whereas Frunze emphasized the defensive thrust of the leading, political aspect of Soviet military doctrine, he stressed that in its military-technical aspect; i.e., the methods of waging war in the defense of the USSR, it must be active and offensive. The just nature of the war and the military advantages of the offensive require this.

The military-theoretical views of Mikhail Vasil'yevich had great influence on the development of Soviet military science and military art. They were also confirmed during the Great Patriotic War.

Frunze was not only a military, but also a party and state figure. He was a member of the VTsIK [All-Russian Central Executive Committee] at all its convocations from January 1918; a member of the RKP(b) Central Committee from 1921; a candidate member of the Central Committee Politburo from June 1924; and a member of the USSR Council of Labor and Defense from February 1925. During the period of his work in the Ukraine from November 1920 until his transfer to Moscow he was a member of the KP(b)U [Ukrainian Communist Party (of Bolsheviks)] Central Committee and from December 1920 a member of the KP(b)U Central Committee Politburo and member of the VUTsIK [All-Ukrainian Central Executive Committee]. From February 1922 he was a deputy chairman of the UkSSR Council of People's Commissars (concurrent with his other positions).

M. V. Frunze was awarded two orders of the Red Banner and a Gold Revolutionary Gun.

\* \* \*

M. V. Frunze lived 40 years in all. But he did so very much for the victorious proletarian revolution, the defense of its gains and the building of an army of a new type. An address of the RKP(b) Central Committee on 1 November 1925 to "All Party Members and All Workers and Peasants," on the occasion of his death stated: "A great communist revolutionary has died. Our famed military comrade has died. The leader of the victorious battles of the Red Army has died. Its leading builder has died."

The contribution of M. V. Frunze to Soviet military science, which was founded by V. I. Lenin was great. Much of what he stated and substantiated retains its importance even today. This includes in particular: the methodological approach to the development of Soviet military doctrine; the role of the economic factor in war and the consequent unity of solutions to economic and defense tasks accomplished in advance; the link between military art and operational, military and political training and their closest possible

approximation to combat conditions; and constant combat readiness. Frunze's military-theoretical legacy is used creatively even today in educating, bringing up and training army and navy personnel and Soviet command cadres.

The feats of M. V. Frunze as a revolutionary, military leader and military scientist are an example of selfless service to the Communist Party, the socialist fatherland and his people. His glorious name is eternally preserved in the memory of our soldiers and all the Soviet people.

COPYRIGHT: "Kommunist Vooruzhennykh Sil", 1985.

9069

CSO: 1801/175

## ARMED FORCES

### EDITORIAL FOCUSES ON VALUE OF SERGEANTS, WARRANT OFFICERS

Moscow KRASNAYA ZVEZDA in Russian 10 Jan 85 p 1

[Editorial: "Sergeants and Warrant Officers Need to be Taught Thoughtfully"]

[Text] It was 40 years ago during the Vistula-Oder Operation. During the reconnaissance of the area around the city of Groszowiec, 2 tanks of the 54th Guards Tank Brigade with a group of scouts under the command of Guards Sergeant S. Udov had advanced deeply into the enemy's defense and were approaching an crossing-point on the Oder guarded by the Nazis. Having attacked the enemy without warning, they annihilated the enemy's cover, seized the crossing-point and held it until the main forces arrived; this facilitated victory for the brigade. The Motherland regarded this soldierly exploit highly. Guards Sergeant S. Udov was awarded the title of Hero of the Soviet Union.

There are many similar examples in the history of the Great Patriotic War. As the immediate leaders of soldiers and sailors, sergeants and warrant officers are different not only because of their bravery, but also because of their skill in properly adjusting to a difficult situation and effectively utilizing equipment and weapons. They often replaced fallen officers and showed their ability to organize and lead other soldiers, thus achieving victory in combat.

The high moral and combat qualities inherent in the sergeants and warrant officers of the Great Patriotic War also distinguish many today who command squads and crews, have high combat responsibilities and act as deputy platoon leaders and subunit warrant officers; these individuals are rightly called the officers' assistants. Additionally, as military affairs develop and the nature of modern combat changes, the operations of small subunits play an increasingly important role and the demands placed on sergeants and warrant officers continue to grow. We must keep this in mind as we select candidates for training subunits and detachments and for the organizations preparing future sergeants and warrant officers. Simultaneously, we must not forget that the decisive phase in the training of young commanders is their service in units and on ships. The further improvement of their military and political skills, leadership qualities and know-how is one of the foremost tasks facing commanders, political officers and staffs.

Work with the sergeants, for example, in Guards Lt Col M. B. Varentsev's Guards Parachute-Assault Regiment is considerably instructive in nature. Issues associated with their training and education are continually the focal point of the subunit commanders, political workers and party and komsomol organizations. The demonstrative and instructional lessons conducted with the sergeants are of the highest calibre. Additionally, particular attention is focused on the search for methods to intensify the learning process, organize mission and norm competition, and inculcate the sergeants with the skills of education workers. The forms and methods used for the training and political, military and moral education of the young commanders are constantly being improved. It is no accident that the regiment is famous in the air assault forces for its excellent knowledge of military affairs, strong-willed and enterprising sergeants and skill in training and educating subordinates capable of accepting responsibility for bold and independent decisions.

Unfortunately, there are subunits, units and ships where the issues of sergeant and warrant officer training and education have not become the center of everyday attention. There are places where the exactitude required by the manuals of young commanders and the concern for them are insufficiently regarded. As a result, some sergeants and warrant officers have a poor professional education; they approach the execution of their service obligations without the required zeal, are not active in public affairs and violate military rules and regulations. For example, in the battalion where L. Mishakovskiy is chief of staff, failure was experienced in many areas of the battalion's final evaluation exercises because of this. Since young commanders failed to deal properly with those who violated discipline in various ways, an unhealthy moral atmosphere resulted in the military collective.

Sergeants and warrant officers are closer to their soldiers and sailors than anyone else. This permits them to learn well the personal qualities of every soldier, influence constantly the affairs in garrison and during lessons, and support a healthy moral climate in the collective. Success in their efforts, as experience shows, depends primarily on how much each of them understands thoroughly his duty, improves his know-how and skills acquired in training subunits and detachments, utilizes sensibly the rights allowed by military regulations and serves as an example for his subordinates. Ideological maturity, exemplary training, the skill to organize and educate people and moral purity are the qualifications demanded by the party of its cadres; these same qualifications are equally demanded of sergeants and warrant officers who make up the largest number of command personnel in the Soviet Armed Forces. Thus, all forms and methods of work with them should be subordinated to the inculcation of these qualities in them. This is achieved most quickly there where practical exercises and training are conducted under difficult conditions which demand from young commanders bold and decisive moves, resourcefulness and tactical acuity. It is also necessary to teach them through as many subjects as possible the art of educational work, cut short decisively the slightest infraction of the rules and regulations of military manuals in dealing with subordinates, and provide them any modern skills and knowledge available.

It needs to be stressed that the level of sergeant and warrant officer professional training largely depends on the sergeants and warrant officers themselves, their diligence and perseverance, their efficiency and initiative.

It is an issue of honor on the part of a young officer to be a model of expedition, discipline, smartness and loyalty to military to subordinates.

Life is convincing: the prestige of young commanders, their contributions to the enhancement of the combat readiness of a unit or ship, the strengthening of discipline and organization is felt more strongly where party and komsomol organizations are constantly concerned with their emergence. Educating sergeants and warrant officers to feel highly responsible for the tasks they are entrusted with, the demonstration of their personal example in the execution of their military duties, and their active involvement in social affairs are the specific manifestations of this concern. Party and komsomol committees and agencies can do much to arm them with the experiences of the best specialists and educators. In retaining the initiative and the beneficial ventures of sergeants and warrant officers, it is also important not to disregard their errors or, especially, their incorrect behavior.

The high level of ideological maturity and professional training of young commanders belong to the most important prerequisites for the successful solution of problems facing soldiers and sailors, the accomplishment of objectives in competition for a dignified celebration of the 40th anniversary of victory and the 27th CPSU congress, and the maintenance of unit and ship readiness at the required level.

12247

CSO: 1801/123

ARMED FORCES

TABLE OF CONTENTS: TEKHNIKA I VOORUZHENIYE NO 12, 1984

Moscow TEKHNIKA I VOORUZHENIYE in Russian No 12, Dec 84 (signed to press  
14 Nov 84) p 44

[Text] Contents

Attention to Training Aids.....	1
S. Vorob'yev--Microprocessors in the National Economy.....	2
A. Aboronov--School for Artillery Experts.....	4
A Short Chronology of the War.....	6
V. Nikolayev--To Navy Engineers.....	7

Status, Problems, Prospects

V. Fedorov--Aircraft Construction Materials.....	8
I. Kosikov--Anti-torpedo Operations.....	10
O. Ukke and I. Gorbato--Protection From Incendiary Weapons.....	11
A. Novikov and L. Lyul'kis--Engineer Handbook.....	--

Training, Operation

A. Petrov and V. Kuznetsov--Automatic Metering Systems.....	12
TIV Replies to Readers' Questions.....	14
For Your Notebook.....	15
G. Trebukhov--T-72 Tank: Cold Weather Operation.....	16
D. Kostsov--Topography Is a Calling.....	17
V. Korniyenko and B. Markelov--V-46 Engine: Stoppage Pully.....	18
Yu. Sukhochev--Aircraft Refueling Line Repair.....	20
V. Panov--Helicopter Engine Maintenance.....	21
E. Kocharov and V. Khizhnyak--Restoring Contaminated Fuel Tanks.....	24
N. Bepal'chiy and V. Malyshev--Semi-trailer Service.....	25
Yu. Meshcheryakov--Training Set.....	27

Inventions and Improvements

The Final Stage.....	28
V. Ol'shanskiy--On the Way to Automation.....	30
Recommended for Adoption.....	31
V. Podvoyskiy--Patent Searches.....	--
Inventors Passing on Experience.....	32

## In the Armies of Capitalist States

A. Grigor'yev--Smart Bombs.....	34
V. Bychkov, A. Andriyets and A. Rozhkov--Portable Refueling Equipment..	35
Equipment and Weapons.....	36
V. Mitropov--Information Processing in Airborne Command Posts.....	38
Contents--1984.....	40
Test Your Knowledge.....	43

Front Cover--Photo by A. Romanov

Inside Back Cover--Articles, "Weighing Errors," by O. Nametkin and  
P. Kopysskiy and "The Work in Moving Brigades," by V. Safronov

Back Cover--Drawing by O. Shmelev

COPYRIGHT: "Tekhnika i vooruzheniye", 1984.

12747

CSO: 1801/109

ARMED FORCES

TABLE OF CONTENTS: VOYENNNY VESTNIK NO 12, 1984

Moscow VOYENNNY VESTNIK in Russian No 12, Dec 84 (signed to press 5 Dec 84)  
p 1

[Text] Contents

D. Grinkevich--The Staff Is the Combat Training Organizer..... 2

Implement the 26th CPSU Congress Resolutions!

An Energetic Program Underway..... 7

People, Exploits, Reflections

A. Seregin--Search..... 10

Results of the Discussion of the Article "Combat Operations Support"

A. Mayorov--Immutable Conditions for Victory in Battle..... 13

VOYENNNY VESTNIK at the Final Evaluations

Yu. Protasov--The Guards Airborne Form..... 17

V. Rudoy--Everyone in the Exercises Was Satisfactory..... 21

Yu. Morenko and V. Nikonov--Specialist Training Examination..... 23

B. Shubin--Chemical Troops Rebuked..... 25

B. Gadalín--The Field Determines the Evaluation Results..... 28

V. Ivanov--The Artillery Battalion Is Rated Outstanding..... 30

Combined Arms Combat Theory and Practice

V. Grigor'yev--March Discipline..... 33

Did You Know..... 36

Analysis of Tactical Mission Decisions..... 37

Airborne Troops

V. Bazel'chuk--The Battle for the Pass..... 39

## Training and Military Education

Ye. Ivanovskiy--Officer Preparation Is a General Concern.....	41
Lieutenants Report to Their Unit.....	45
Inspection and Tournament Results.....	48

## In Military Institutes and Faculties

V. Rodnev and A. Dilanyan--Master the Art of Counterpropaganda.....	49
N. Corin--Advanced Methodology Brings Success.....	52

## Discussion of Lt S. Matveev's Letter "How Do We Rally A Military Collective?"

I. Lavrenov--Give Praise.....	54
V. Chuksin--The Educational Role of Competition.....	56

## From the USSR--Exhibition of Achievements of the National Economy Into Troop Practice

Innovators Passing on Experience.....	59
---------------------------------------	----

## Rockets and Artillery

G. Litvinovich--Firing on Targets Close to Our Troops.....	60
V. Kozlovskiy--Training for Live Fire.....	63
A. Zhukov--Control Both the Formation and the Frame of Mind.....	64
To New Limits.....	67

## Fire and Weapons

V. Stadnik--From Simple to Complex.....	68
---	----

## Special Troops

S. Zhuykov--Bridged Gap.....	71
V. Desyatskiy--Individual Efficiency.....	73

## Advanced Methodology

S. Sitnikov--We Teach Long-Distance Communications Repairmen.....	75
---	----

## Facing the All-Army Inspection and Competition for the Best Garrison in Material and Daily Life Conditions

V. Belyakov, Yu. Torchin and A. Kliment'yev--The Struggle to Economize. Check Your Decisions.....	79
	82

## With Our Friends

Le Tkhan--40 Years in the Ranks and in Combat.....	83
--	----

## Critique and Bibliography

Ya. Gorelik--The One-Volume Work They Expected.....	87
A. Ostrovskiy--A Book Is a Combat Assistant.....	89
Index of Article Published by VOYENNNYY VESTNIK in 1984.....	91
Chess.....	96

COPYRIGHT: "Voyennyy vestnik", 1984.

12747

CSO: 1801/109

# AIR/AIR DEFENSE FORCES

## TABLE OF CONTENTS: VESTNIK PROTIVOVOZDUSHOY OBORNOY NO 12, 1984

Moscow VESTNIK PROTIVOVOZDUSHOY OBORNOY in Russian No 12, Dec 84 (signed to press 10 Dec 84) p 2

### [Text] Contents

Skillfully Handle Combat Equipment.....	3
Operational Readiness	
N. Kochetov--The Weapon Is Crew Served But the Responsibility Is Personal.....	6
The Air Defense Battle: Problems and Options	
Ye. Berzin--Methodology for Basing Decisions on Many Criteria.....	9
Combat Training: Training and Education	
I. Dokuchayev--Considering the Tactics of the Probable Enemy.....	14
B. Ragimov--Improving Training for Surveillance and Acquisition Radar (SRTs) Crews.....	17
V. Popadchenko--ADA Soldiers Maneuver.....	20
V. Romanov--Junior Officer Day in the Unit.....	22
L. Kazakevich--Communications Officer Tactical and Socialist Training..	25
Flight Safety	
Ye. Chernykh--Analysis of Industrial Training.....	28
Socialist Competition	
V. Kononov--How To Determine Socialist Competition Winners.....	31
Military Education Institutes	
V. Kartsev--In Examples of Heroic History.....	34
F. Ren'kas--Independent Work--Social Science Study.....	38
I. Sukharevskiy--A Military Direction in Mathematics Instruction.....	40

By the Book!	
Ye. Il'goldshteyn--Commander's Exacting Attitude.....	43
Party-Political Work	
A. Naumov--Very Effective in Party Work.....	47
A. Bryakvin--In the Struggle for Thorough Mastery of Equipment.....	51
Leading Experience Tribune	
Ye. Kuz'min--Communists and Air Defense Missile System Service Quality.....	55
Assistance to the Propagandists	
V. Bondarenko--The Concern of the CPSU for Accelerating the Scientific-Technical Progress.....	58
Military Pedagogy and Psychology	
V. Mikhaylovskiy--Know and Learn the Requirements of Educational Principles.....	63
The Engineer and Fighting Equipment Operation	
A. Savvilev and V. Beloshitskiy--Control and the Scientific Organization of Labor (NOT).....	67
I. Markov--Unabated Attention to Troop Aircraft Repair.....	69
I. Chepelev--To Improve Military Meteorologist Professional Training... Recommended for Adoption.....	73 76
Troop Logistics Practice	
A. Smolov--For Better Troop Logistics Specialist Technical Training....	77
Economy and Thrift	
M. Badretdinov--Recovered Heat.....	80
In Foreign Armies	
V. Nikolayev and V. Chernukhin--New Generation U.S. Cruise Missiles....	81
For the 40th Anniversary of the Great Victory	
E. Yakushov--Armored Air Defense Trains in the Great Patriotic War.....	84
V. Antonov--Courage and Skill.....	88

\*\*\*

To the Journal Readers.....	91
-----------------------------	----

\*\*\*

Index of Articles Published in VESTNIK PROTIVOVOZDUSHNOY OBORNOY in 1984.....	92
--	----

\*\*\*

Following Our Statements.....	19, 42, 75
-------------------------------	------------

COPYRIGHT: "Vestnik protivovozdushnoy oborony", 1984

12747

CSO: 1801/109

## NAVAL FORCES

### REAR ADM KOSTEV REVIEWS BOOK ON ADM GOLOVKO

Moscow KRASNAYA ZVEZDA in Russian 10 Jan 85 p 2

[Article by Professor Admiral G. Kostev: "The Talent of the Commander"]

[Text] The Great Patriotic War discovered a whole constellation of famous names of Soviet generals and military leaders. The name of naval commander and major naval military leader, Admiral A.G. Golovko, comes to mind. He is the subject of a book by the same name published by Voenizdat. The book is interesting primarily for the military person, but it will unquestionably perform a good service for an even larger group of readers from young men, dreaming about the navy as a career, to the white-headed veteran as well.

From the book we learn that regardless of his position, Arsyeniy Grigoriyevich remained at all times a man of public awareness and driving energy and a principled, demanding, concerned, sensitive and accessible leader. His exceptional abilities as a major naval chief came to light especially brightly during the Great Patriotic War. The combat vessels and units of the Northern Fleet under the command of A. Golovko entered many glorious pages in the history of the Soviet Armed Forces as they operated under difficult conditions. Thus, according to domestic reports, the fleet conducted 1,548 convoys, including 2,951 transports, during the war years. Seventy-six allied convoys of more than 1,400 British, U.S. and Soviet transports sailed to Soviet northern ports and back. The enemy succeeded in sinking only 16 Soviet ships. On the other hand, sailors of the Northern Fleet destroyed 413 enemy transports with a total tonnage of more than 1 million dead-weight tons and 214 enemy combat vessels and auxiliary ships.

For courage and bravery, demonstrated in combat, 85 sailors of the Northern Fleet became Heroes of the Soviet Union; two of these, A. Shabalin and B. Safonov, were accorded this high title twice. More than 48,000 soldiers and sailors of the Northern Fleet were awarded orders and medals.

One of the bright facets of the admiral's talent was his skill in relying on the most extensive number of comrades-in-arms, specialists and experts as possible; he was capable of promoting the greatest demonstration of their own talents, and he could beneficially influence them and learn from them. The commander's nearest and stable support came from the fleet's leaders, primarily the military council. The collective wisdom and experience helped the fleet commander make naturally the best decisions and find ways of getting out of the most difficult situations resulting during combat operations.

The book notes that the fleet commander had a deep satisfaction and the warmest feelings and impressions from his joint work with commanders S. Kuchеров, A. Kuznetsov, and A. Andreyev; the same was also true with regard to political officers A. Nikolayev, N. Torik, as well as other admirals, generals and officers. They were all distinguished by a great devotion to the party, a feeling of responsibility for the tasks charged to them and extensive knowledge and experience.

Along with Admiral A. Golovko's other virtues, simplicity, community, and accessibility were also noted by the fleet. The sailors of the Northern Fleet regarded these qualities in him highly, and he never abused them. When he decided they had to be used, it was only in special, exceptional situations. Of particular value is the episode cited in the book which took place in 1944 during the Petsamo-Kirkenes Operation. When the fleet commander had boarded the Linakhamari, which had just been put out of action by the enemy, as it was tied to the pier, 2 wounded scouts of the Red Fleet, Kalaganskiy and Kolosov, addressed him:

"We are only lightly wounded. For this reason, please order, Comrade Admiral, that we not be sent to the rear to a hospital. Here on base, by the sea, and near our detachment we will get well faster. Put a good word in for us with the doctors."

Of course, he promised to comply; he then drew a conclusion which was supported day by day with facts: the aggressive spirit of the Northern Fleet's sailors was high.

During the postwar period, Admiral A. Golovko worked productively in the positions of chief of the Main Staff and first deputy of the commander-in-chief of the USSR's Naval Forces; he gave all he could, his rich experience and comprehensive knowledge to strengthening and developing the navy. He also dedicated himself selflessly to matters of great importance as a public figure, a deputy to the Supreme Soviet of the USSR and RSFSR, a party member, and, finally, simply as a citizen of a socialist country; he felt deeply for and was very conscious of the great responsibility he bore for the Fatherland's security.

The memory of the remarkable Soviet admiral lives on in the names of streets in Severomorsk, Polyaniye and other garrisons of the Red Banner Northern Fleet. A missile cruiser and a nuclear trawler, bearing the name A. Golovko, cruise various regions of the world's oceans. He will remain with the navy, in its ranks and in its history forever.

12247

CSO: 1801/123

# NAVAL FORCES

## TABLE OF CONTENTS: MORSKOY SBORNIK NO 11, 1984

Moscow MORSKOY SBORNIK in Russian No 11, Nov 84 (signed to press 6 Nov 84)  
pp 1-2

### [Text] Contents

Best Wishes for the Great October Holiday!

On the Great October Course..... 3

Implement 26th CPSU Congress Resolutions!

V. Losikov--A Total Life of Service..... 9

\*\*\*

Navy Chronicle..... 14

Best Wishes to the Naval Missilemen and Gunners!..... 17

### Naval Theory

O. Verbovoy--Experiences From Soviet Navy River Assault Crossing  
Operations During the Strategic Offensive Operations in 1944 and  
1945..... 18

N. Makhrov--Mathematics of Decision Making: Past and Present..... 24

### Party Political Work and Military Education

A. Vorob'yev--Touch Each Person's Heart..... 29

M. Kabakov--The Course to Sea..... 33

### Combat Training

P. Navoytsev--Staff Work Effectiveness..... 37

Yu. Ryss--To Increase Ship Training Quality..... 41

V. Yoltukhovskiy--Combat Training of the Black Sea Mine Sweepers  
Before and at the Beginning of the Great Patriotic War..... 44

N. Utkin--It Takes Time to Become a Teacher..... 48

N. Ryabushkin--In One Bunch..... 52

## Pages of History

November, 1944.....	56
M. Gorbunov and G. Barteve--The "Avrora" in the Defense of Lenin's City.....	58
Ye. Osetskiy--Gumanenko's Baltic.....	60
Yu. Bodarevskiy--Torpedo Attack Expert.....	62
V. Arsen'yev--Arctic Hero.....	63
B. Tyurin--The First Domestic Battleships.....	66

## Weapons and Equipment

V. Romanenko--Effective Radio Communications Is a Fundamental Part of Success in Naval Combat.....	68
O. Pakhomov, V. Martynyuk, and V. Pigin--Nonlinear Acoustics and Its Prospective Uses.....	71
V. Tkachev--Berthing Shuttle Device.....	74

## Natural Phenomena and Life at Sea

V. Semikov--Sea Creatures. Myths and Bionics.....	75
---	----

## In Foreign Navies

A. Aleksandrov and N. Naskanov. Aircraft Carriers in Antisubmarine Warfare Operations.....	79
--	----

\*\*\*

G. Ivanov--Bon Voyage, Brothers!.....	87
---------------------------------------	----

## Critique and Bibliography

V. Fedotenkov--Book on the First Narkomvoyoymor [People's Commissariat for Military and Naval Affairs].....	92
S. Berezhnoy--Under the Name of the October Revolution.....	94

\*\*\*

New Books.....	95
----------------	----

Front Cover--Photo by A. Shadrin

COPYRIGHT: "Morskoy sbornik", 1984

12747

CSO: 1801/109

# NAVAL FORCES

## TABLE OF CONTENTS: MORSKOY SBORNIK NO 12, 1984

Moscow MORSKOY SBORNIK in Russian No 12, Dec 84 (signed to press 11 Dec 84)  
pp 1-2

### [Text] Contents

"To the 40th Great Victory Anniversary 27th CPSU Congress--Our  
Selfless Military Labor!"--The Slogan for Socialist Competition  
in the USSR Armed Forces Party Concern for the Komsomol..... 3

Implement 26th CPSU Congress Resolutions!

N. Khramov--In the Party Sphere of Influence..... 8

\*\*\*

Navy Chronicle..... 11

"Varyag" Traditions in Actions..... 14

### Naval Theory

G. Ostashevskiy--Mining Operations in the Black Sea 1941-1942..... 16

### Party Political Work and Military Education

P. Gryazev and V. Perepelitsyn--Instilling Soviet Sailors With the  
Spirit of the Strictest Discipline and Observance of Soviet Laws... 20

A. Shimanovskiy--In the Glorious Combat Traditions..... 23

V. Tyurin--Skill Plus Self-Control..... 26

V. Dorozhinskiy--Know Each, Influence Each..... 28

### Combat Training

V. Kalukhin and B. Azikov--Steadily Modernize Military Training..... 30

Ye. Arsiyenkov--Course Chief: The Job and the Man..... 35

A. Terent'yev--...Strict Demands on Oneself..... 38

A. Artyugin--The Value of Gold Braid..... 42

S. Skuratov--Determining Ship Maneuverability..... 45

V. Gudyma--Towing With a "Mill"..... 46

V. Mel'nikov--Crew Pilot.....	47
V. Sinegubov--There It Is, on the Halyards.....	50

#### Pages of History

December, 1944.....	53
O. Chemesov--Deep Sea Research.....	55
Proven Worthy Fighting for Our Homeland.....	57
Calendar of Significant Navy Dates January-June 1985.....	58

\*\*\*

Ye. Korovin--Omissions in One Chronicle.....	60
--	----

#### Weapons and Equipment

V. Ivanov--Ways to Increase Specialist Training Quality.....	62
G. Turmov--Ship Hull Corrosion and Its Prevention.....	64
B. Nersesov--Cryogenic Electronics.....	66

#### In Foreign Navies

V. Lavrov--U.S. Navy Logistics and Maintenance Support at Sea.....	70
I. Dalin--A New English Diesel Submarine.....	73
Information and Facts.....	77

#### Critique and Bibliography

About the Great Victory.....	79
A. Komarov--Documented Fact or Fiction?.....	82

#### Literary Pages

S. Kolbas'yev--Ship Captains.....	84
-----------------------------------	----

\*\*\*

Planned Topics for MORSKOY SBORNIK in 1985.....	88
Index of Articles Published in MORSKOY SBORNIK in 1984.....	92
New Books.....	95
Instructions to Writers.....	96

Front Cover--Photo by Yu. Pakhomov

COPYRIGHT: "Morskoy sbornik", 1984.

12747

CSO: 1801/109

## SPECIAL TROOPS

### MILITARY TRADE: SOCIALIST COMPETITION CHALLENGE

Moscow KRASNAYA ZVEZDA in Russian 10 Jan 84 p 1

[Article: "Work Effectively and Qualitatively and Provide a High Level of Service"]

[Text] In carrying out the decisions of the CPSU's 26th Party Congress and preparing to celebrate the 40th anniversary of the Soviet people's victory in the Great Patriotic War and the 27th Party Congress, the workers of the Kiev Military District's leading military trading organization, headed by V. Zhgilyva who is an employee of the Soviet Army, fulfilled the 1984 plan for commodity circulation ahead of time.

The collective of this military trading organization, having pledged socialist obligations for 1985, appealed to all the workers of the entire military trading organization to strive for the total fulfillment of 1985's and the Five Year Plan's objectives in the competition, a thrifty attitude towards commodity stocks, and zealous management under the slogan "Work effectively and qualitatively and provide a high level of service."

Appeal of the Military Trading Organization's Collective of the Kiev Military District's Commerce Directorate to all the Workers of the Military Trading Organization

Comrades!

With a feeling of great responsibility, the workers of the military trading organization are working on the implementation of the decisions of the 26th Party Congress, the October 1984 CPSU Central Committee Plenum, the instructions of the General Secretary of the CPSU Central Committee and Chairman of the Presidium of the USSR Supreme Soviet, Comrade K.U. Chernenko, the decisions of the 2nd session of the USSR Supreme Soviet, which confirmed the 1985 plan for the country's economic and social development, and the concluding year of the 11th Five Year Plan.

In preparing to celebrate with dignity the 40th anniversary of victory in the Great Patriotic War, the 50th anniversary of the Stakhnovite movement, the upcoming 27th Congress of the CPSU, the workers of our military trading organization are determined to consolidate achieved successes and to strive for the total fulfillment of the tasks planned for 1985 and the 11th Five Year Plan. After having analyzed last year's results and weighed its own possibilities and reserves, the military trading organization's collective has taken on the following obligations for the final year of the 11th Five Year Plan:

To fulfill the State Plan for retail commodity circulation in trade by 25 Dec and to sell above the plan no less than 150,000 rubles of goods; to achieve an increase in commodity circulation of 90 percent by increasing labor productivity, and to raise the sales of goods through self-service to 90 percent.

To improve commercial efforts, strengthen and expand direct ties to the deliverers. Set up a reliable barrier against goods of inferior quality, and defend in principle the interests of the consumer always and everywhere. To purchase and sell from decentralized sources goods for 1.2 million rubles.

To expand the number of people employed in the public distribution of books, increase the public's purchase of books to 15 percent of the commodity circulation of book sales.

To improve as much as possible the work of public catering enterprises, increase the quality of food preparation and the level of service in dining halls, soldiers' canteens and cafes. To increase to 74 percent the proportion of private production in the commodity circulation of public catering. To achieve a situation in which no fewer than 50 percent of the public catering enterprises were awarded the title of "Enterprise with a High Level of Service." To fulfill the plan for the sale of private production in public catering by 22 December.

To accomplish all tasks in personal services by 20 December. To ensure that the proper sewing of uniforms for the officers and warrant officers belonging to the units for which we are responsible is finished strictly on schedule. To fulfill all our customers' orders immediately.

To act aggressively in the implementation of the Food Program. To deliver 150 head of swine for fattening and receive an actual 160 centners of meat in return. To increase the sale of early vegetables by 5 percent over 1984's level. To implement the progressive method of "Field to Store" for no fewer than 600 tons of fruit and vegetables

To create the most comfortable conditions for customer service. To organize the sale of goods on credit and the home-delivery of large items in all industrial sales stores, as well as the acceptance of preorders. To conduct fairs, bazaars, tours to isolated garrisons, and everyday event at a high level of organization and service, after having increased their number 10 percent above the plan's objectives.

To fulfill the economization plan by 105 percent and reduce the losses in sales turnover by 0.05 percent below the plan's objective, even in public catering by 0.1 percent, and to increase correspondingly the profitability of enterprise work.

To work for 2 days annually on economized fuel and lubrication materials and to cut energy losses by 2 percent below the plan's objective.

To continue the improvement in the material-technical base: to finish the construction of a pigsty for 500 head and a food storehouse. To implement a major overhaul of the sales complex. To maintain all production facilities in exemplary condition.

To improve constantly supervisory and auditing work and ensure the total safety of commodity stocks. To step up the work of public control commissars and national control groups. To see to it that all military trade organization workers attend lessons at economic seminars and schools of communist labor in the system of party education. To develop more intensively tutorship and sponsorship over young workers. To pay constant attention to the enhancement of specialist qualification and to train 20 workers of the mass professions by means of the single-brigade method.

To organize in military trade organization enterprises labor training for the professions of senior class students in accordance with the school reform and for increasing their qualifications.

The meeting calls all workers of the military trading organization to support our appeal and to commemorate the 40th anniversary of victory in the Great Patriotic War and observe the CPSU's 27th congress with high indicators in the personal sales support to military servicemen and their families and with the early fulfillment of the planned tasks for 1985 and the 11th Five Year Plan overall, and to implement the slogan "To Work Effectively and Qualitatively and Provide a High Level of Service."

12247

CSO: 1801/123

## SPECIAL TROOPS

### TABLE OF CONTENTS: TYL I SNABZHENIYE NO 12, 1984

Moscow TYL I SNABZHENIYE SOVETSKIKH VOORUZHENNYKH SIL in Russian No 12, Dec 84 (signed to press 11 Dec 84) p 1

#### [Text] Contents

Lead Article--An Enormous Task--The Welfare of the People.....	3
O. Vasil'yev--Frunze Academy Cadets.....	7
I. Golushko--Some Military Pedagogy Advice.....	9
Toward the All-Army Conference on Improving the Daily Life of the Troops	
V. Dutov--In the Interest of Military Daily Life.....	16
Ya. Gudis--A Military Canteen Goes to the Field.....	21
To the Readers.....	24
For the 40th Anniversary of the Great Victory	
Heroic Traditions Live.....	25
Combat, Political and Special Training	
V. Malyuga--Considering Ecological and Climatic Conditions.....	31
R. Abdrashitov and G. Dyadyk--Medical Support and Automated Control Systems.....	35
E. Frolenkov--Not Just a Specialist.....	38
Help for the Commander	
M. Muzelin and V. Gusev--Mobile Meat Processing Plant--In Exercise.....	40
It Was in the War Years	
N. Pan'kov--Wheeled Transportation in 1944.....	43
Saving Means Multiplying	
Are All Reserves Being Used? (Voenkorovski Raid).....	46
A. Oleynik--Use Each Liter of Fuel.....	49

## Our Contribution to the Food Program

B. Silyuk--Final Results.....	51
-------------------------------	----

## Logistics, Medical Support, Finance, Everyday Troop Life

A. Moroz--A Strong Food Service Logistics-Maintenance Base.....	54
G. Leont'yev--Prepared Food Quality Control.....	57

## Lines of Communications, Transport, Supply, Maintenance

N. Vasil'yev--To Improve the Use of Military Roads.....	60
G. Kulikov and P. Kopysskiy--Meteorological Support for the Fuel Service.	64

## New Equipment--Better Mastery

Yu. Belousov--Pipeline Through Sand.....	66
--	----

## At the USSR VONKH [Exhibition of Achievements of the National Economy]

A. Mel'nichuk and M. Akishin--Medical Personnel Exchange Experiences....	69
--	----

## Letters to the Editor

V. Voytovich--Whether to Demonstrate Initiative?; L. Tarasenko--Which Coefficients Are Used?.....	71
Meeting With Readers.....	72

## Reviews, Observations, Annotations

P. Kukushkin--Voenizdat [Military Publishing] in 1985.....	73
N. Azarkin--Transporting Dangerous Cargoes.....	74
Chronicle.....	75
An Artist's Smile.....	76
Abbreviated Index of Articles Published in TYL I SNABZHENIYE SOVETSKIKH VOORUZHENNYKH SIL in 1984.....	77
The Journal Is Published. What Was Done?.....	80

COPYRIGHT: "Tyl i snabzheniye Sovetskikh Vooruzhennykh Sil", 1984.

12747

CSO: 1801/109

## SPECIAL TROOPS

### CONSTRUCTION TROOPS: PLAN FULFILLMENT

[Editorial Report] Moscow KRASNAYA ZVEZDA in Russian on 28 February 1985 carries on page 2 a 150-word article by Major V. Aleshkevich entitled "For Shock Work," which briefly describes the achievements of the Construction Troops of the Moscow Military District. They are said to have overfulfilled the plan on the basis of the technical-economic indices, increasing the productivity of labor by 1.9 percent and reducing the cost of construction and repair work by 0.6 percent. As a result the collective of the Construction Directorate of the district was for the eighth time awarded the challenge Red Banner of the Ministry of Defense by the Chief of the Political Administration for Construction Troops Colonel General V. Bychenko.

CSO: 1801/181

DOSAAF

METHODOLOGICAL RECOMMENDATIONS FOR MONTH OF MASS-DEFENSE WORK

Moscow SOVETSKIY PATRIOT in Russian 30 Dec 84 p 1

[Article: "For Duty and Defense of the Motherland, Recommendations Concerning Methods of Organizing All-Union Mass-Defense Month Activities"]

[Text] The traditional All-Union Mass Defense Month activities are being dedicated to the 67th anniversary of the Soviet Armed Forces and the 40th of the victory the Soviet people won in the Great Patriotic War of 1941-1945. Activities will run from January 23 through February 23, 1985 under the slogan "Our selfless labors in honor of the 40th anniversary of the great victory and the 27th Congress of the CPSU!"

The objective of the month's program of activities is to continue the education of our youth and working people in the heroic traditions of the Communist Party, the Soviet people and the USSR Armed Forces and to involve large groups of the population in mass-scale defense activities.

Particular attention should be given during the course of the month to the task of explaining the party's political line as outlined by the 26th Congress of the CPSU and elaborated at subsequent plenums of its central committee, the theses and conclusions contained in the speeches of Comrade K. U. Chernenko, general secretary of the CPSU Central Committee and chairman of the Presidium of the USSR Supreme Soviet, the CPSU Central Committee decree, "The 40th Anniversary of the Victory of the Soviet People in the Great Patriotic War of 1941-1945," and the foreign policy course the party and Soviet Government have mapped out in the direction of securing lasting peace and bringing an end to the arms race. Under the conditions prevailing in today's difficult international situation, it is critical that we lay bare for all to see the essentially antipopular nature of American imperialism and its aggressive foreign policy.

Work together with local party organizations to open the month's activities in all republic, kray, oblast and rayon centers and in all towns and villages on a festive note and invite representatives of party and soviet bodies, military units and military commissariats, activists of social organizations, veterans of the battlefronts and the factories, members of the armed forces who have earned "excellent" ratings in combat and political training, men who have just been called up for military service and students of DOSAAF schools.

Together with the commands and political organizations of formations, units and ships work to involve the youth in mass military-patriotic activities conducted in military garrisons, organize trips and visits to military units, military schools and military history museums and familiarize young people with military weapons and equipment and with the everyday life and activities of our troops.

Film festivals and showings of military-patriotic films are being organized in cooperation with film industry officials, theater association managers and film distributors.

The month-long program of activities will also see trade union, Komsomol and other social organizations cooperate in the organization of lectures and other presentations, topical evening discussion periods, meetings with army and navy veterans, agitation runs, field trips, gatherings of preinduction trainees and men who have already been called up for military service, activities conducted as part of the Zarnitsa and Orlenok military sports program and other mass agitation and propaganda activities.

DOSAAF training and primary organizations should hold Lenin and social-political readings on "V. I. Lenin and the CPSU on Defense of the Socialist Fatherland," "The CPSU—Inspiration and Organizer of the Heroic Struggle of the Soviet People in the Great Patriotic War, 1941-1945," "Our Selfless Labors in Honor of the 40th Anniversary of the Great Victory and the 27th Congress of the CPSU," "The Soviet Armed Forces—A Powerful Force for Peace and Security" and "USSR DOSAAF—Reliable Help and Reserve for the Soviet Armed Forces."

During the course of the month's activities make good use of the potential offered by the local press, publishing houses, television and radio to publicize the defense society's program of patriotic activities. Place special emphasis on the publication of material on the 40th anniversary of the victory of the Soviet people in the Great Patriotic War of 1941-1945.

Strengthen relationships with the military sponsorship committees and with their assistance work to improve cultural sponsorship of DOSAAF clubs and schools and training centers; invite more figures from the cultural world and representatives of the creative intelligentsia to speak to groups of registrants and draftees.

Hold mass competitions in the technical and applied military sports in honor of the 67th anniversary of the Soviet Armed Forces and the 40th anniversary of our great victory and everywhere organize boys' and girls' GTO marksmanship qualification meets.

DOSAAF should organize festive Armed Forces Day celebrations as part of a program of committee, training organization and enterprise activities. DOSAAF should participate in the organization on February 23, 1985 of the schedule of watch and honor guard duties Komsomol and Pioneer members and school pupils will perform at the statues of Soviet war heroes and military memorials.

DOSAAF

## IMPROVING RIFELRY TRAINING

### Fulfillment of 1984 Resolution

Moscow SOVETSKIY PATRIOT in Russian 30 Dec 84 p 4

[Text] The recent DOSAAF Rifle Federation-trade union Voluntary Sports Society plenum was informed that over the course of the months following publication of the decree of the collegium of the USSR Sports Committee, the presidium of the USSR DOSAAF central committee, the secretariat of the AUCCTU, the collegium of the USSR ministry of education and the collegium of the USSR State Committee on Vocational and Technical Education, "Ways to Improve Rifle Training," we have seen considerable progress in efforts to increase participation and skill levels in our marksmanship program. More than 3.5 million people throughout the country are now participating regularly in organized rifle marksmanship activities. Millions are passing the GTO [Prepared for Labor and Defense] program's marksmanship requirements each year. The period under review saw 34 DOSAAF-trade union Voluntary Sports Society records improved and 12 new national records set. This year a DOSAAF-trade union Voluntary Sports Society team competing in international competition under the "Friendship and brotherhood" won in all categories (men, women, juniors and children).

At the same time, however, efforts to encourage our marksmanship programs have revealed serious deficiencies. In a number of organizations we are still seeing instances of overstated figures in reports and unsatisfactorily organized GTO marksmanship norm qualification programs; a considerable number of ranges have been closed because of failure to secure weapons and ammunition properly, and not enough use is being made of air-powered weapons in programs designed to teach our younger school children the techniques of marksmanship.

The decree adopted by the plenum outlined a series of steps to take to promote the growth of our organized rifelry programs.

The current issue of the Sniper Club's publication is devoted to this subject.

### General Achievements

Moscow SOVETSKIY PATRIOT in Russian 30 Dec 84 p 4

[Article by A. Gorbachev, deputy chief, directorate of technical and applied military sports, USSR DOSAAF central committee: "A Step Forward"]

[Text] The period now under review has seen the USSR DOSAAF central committee and the DOSAAF-trade union Voluntary Sports Society Rifle Federation engaged in extensive efforts to help defense society committees, the Voluntary Sports Society and enterprises and institutions expand their marksmanship programs.

The status of marksmanship programs has been reviewed in the Ukrainian and Tajik SSR's and in Moscow, Yaroslavl', Kostroma, Kurgan, Tomsk, Ul'yanovsk and other oblasts. In the course of on-site inspections of various facilities a number of specific suggestions have been offered for improving these programs.

We have developed new test models of the TOZ-78c and TOZ-78BK rifles, as well as of the TOZ-78BI and TOZ-78, which should make it easier to popularize riflery among our young people. We have also been able to improve the quality of the 5.6-mm hunting cartridge and extend its guaranteed shelf life. USSR DOSAAF is currently making available a substantial quantity of Diabolo bullets for sporting purposes.

DOSAAF production enterprises have preparations under way for the manufacture of new target equipment.

The presidium of the DOSAAF central committee has approved a new program of training for public trainers and instructors. We are also holding annual 5-day courses for the directors of our gun clubs. This year Omsk has offered the first 30-day course designed to help trainers improve their marksmanship.

We are observing All-Union Marksmanship Week for the second consecutive year this year thanks to the initiative of Hero of the Soviet Union V. Pchelintsev and Olympic champion A. Gushchin. There is no doubt that it has helped attract thousands of new boys and girls to this important and interesting sport. In a number of localities party and soviet officials have participated directly in Marksmanship Week competition.

The Sniper Club's sixth issue announces the initiative of veteran marksmen of the defense society's hero-city Moscow organization calling for individual and team marksmanship competition among sportsmen in the hero cities and holding this competition in honor of the 40th anniversary of the great victory. The first phase of this competition is planned to coincide with All-Union Marksmanship Week.

We think these steps will do a great deal to inject some new vigor into the life of the organizations responsible for promoting the growth of marksmanship programs. DOSAAF does dispose of the facilities required to support this growth. We have 257 gun clubs, 29 technical sports schools for children and young people, 15 outdoor firing ranges and over 400 small-bore indoor ranges which can be used for a fee.

The state of the organization in this large system, however, still leaves a great deal to be desired. Many of our indoor and outdoor ranges continue to be underutilized.

A number of indoor ranges have been closed for failure to adhere to rules governing weapons storage security. This has been a factor contributing to the substantial decrease in committee requests for small-caliber sporting guns.

The decreasing use of small-caliber guns can also be explained by the fact that after the introduction of air rifle marksmanship in the GTO sports program, a number of sports directors have carried things to extremes and abandoned the use of small-caliber guns almost entirely. Things have reached the point where some directors are even suggesting that we use the ELT-2 and EDT-6 model rifles in GTO marksmanship qualifications. We are getting farther and farther away from large-caliber training. And this is having an adverse impact on our premilitary training program.

Padded reports, too, are still a big problem. Reported figures will frequently not square with ammunition consumption. In its statistical summary for 1983, for example, the Ukrainian DOSAAF central committee showed that over 6 million people were participating in republic marksmanship programs. This in fact proved to be far from squaring with the true state of affairs.

The bureau of the presidium of the USSR DOSAAF central committee has firmly pointed out to the Ukrainian DOSAAF central committee and other society committees that this kind of approach to the program cannot be permitted and required them to take steps to insure that there will be no more report padding in the future.

Sport committee data in the Tajik and Kazakh SSR's as well as in Moscow, Kirov, Kostroma and a number of other oblasts do not tally with DOSAAF committee figures.

Only by undertaking a common effort will we be able, and this we must do, to accomplish the task outlined by the party and the government of increasing participation in our physical culture and sports programs and of improving the training we give our young people in preparation for their service in defense of the motherland.

#### Belorussian Club

Moscow SOVETSKIJ PATRIOT in Russian 30 Dec 84 p 4

[Article by A. Sibilev, director, DOSAAF republic gun club, Minsk: "Welcome!"]

[Text] In an effort to attract more people to the gun club's sports program, the Republic Gun Club has gone to a flexible-time schedule. The club's doors open at 8 o'clock in the morning and close at 9 in the evening. We will also be open on Saturday and Sunday.

Our new schedule has already begun to bring in more young people. While 4792 people participated in the GTO qualification program last year, we have seen over 5000 this year. GTO norms have been met by 3735 participants this as compared with 3183 last year.

Working hand in hand with the Komsomol, the education and vocational-technical training people and the trade union Voluntary Sports Society, we organize the annual "First Hope" city competitions, in which as many as 200 participants enter.

The club has become the site of 4-5 all-Union competitions each year and organizes the republic marksmanship competition.

Because we are interested in increasing the number of participants in our programs and in seeing our young sportsmen improve their skills, we provide assistance to DOSAAF committees in the form of suggestions concerning methods and procedures and and of material-technical and other types of support. Over the past few years alone we have provided them with many gun barrels and great quantities of bullets and cartridges. Our instructors pay regular visits to the society's primary organizations, helping promote the marksmanship programs and keeping an eye out for talented young participants.

Our interest in increasing participation in our programs also determines our desire to see participants improve their skills. Within the past two years alone the club has turned out 4 international-class USSR masters of sport, 12 USSR masters of sport, 10 candidates for master of sport, 43 marksmen 1st-class and 250 sportsmen in other categories. Our people, A. Spiridonov, A. Latushko and A. Klimenko among others, will be found among the champions and medal winners of Europe, the USSR and the republic. The success these young marksmen have won is of course shared by their experienced instructors. An all-star Belorussian team recently won our first USSR DOSAAF Cup in air rifle competition.

If we don't have a continuous flow of talented young marksmen into our program, the republic all-star team's success cannot be continued. It is now made up primarily of master marksmen from Minsk and Gomel'. Unfortunately, a number of years have now gone by without a victory banner going to the Vitebsk and Mogilev teams. It comes as no surprise, of course, that the Mogilev Oblast all-star teams has finished last in republic competition for the past six years now.

As was revealed in the course of a recent inspection, the general education schools in Mogilev Oblast's Chernigov Rayon have almost no guns whatsoever. And the situation isn't any better in other rayons in the oblast. The militia has removed guns because they were not being stored under proper conditions. The oblast gun club's indoor firing range was allowed to fall into such a state of disrepair that it became useless. So it was closed down.

The Vitebsk oblast DOSAAF organization has not actually turned in poor results in its other technical and applied military sports programs. The approach it is taking to its marksmanship programs, however, leaves something to be desired. In thirteen rayons in the oblast there is not a single gun even to be found. And just as has happened in Mogilev, the gun club's improperly maintained indoor range ultimately fell into such a state of disrepair that it became inoperable and had to be closed down. Nor can we say that the DOSAAF gun clubs in Brest and Grodno oblasts are functioning at full strength.

It is unfortunate, but there are many DOSAAF technical sports clubs and training organizations which are neglecting the marksmanship programs entirely. This is where we are supposed to be training our preinduction registrants, our future soldiers, and who if not they should ever be able to shoot straight?

7 May 1985

## Problem: Operating Rifle Ranges

Moscow SOVETSKIY PATRIOT in Russian 30 Dec 84 p. 4

[Text] Improvements in our marksmanship programs are going to depend directly upon the efficiency with which we operate our small-caliber and air-powered firing ranges. What we are seeing, however, is that over an enormous region such as Siberia, for example, far from all defense society organizations are demonstrating that they are aware of this relationship.

In Altayskiy Kray, for example, of the 49 DOSAAF committees which have air-rifle ranges, only 5 have achieved their annual target. And not even a shot has been fired at the ranges of the Novoaltayskiy and Zmeinogorskiy DOSAAF city committees or at those belonging to the Burlinskiy, Shipunovskiy and 10 other rayon committees over the course of the entire year.

The situation is even worse when we look at the utilization of our small-caliber ranges. These facilities have stood idle altogether in Zav'yalovskiy, Kulundinskiy, Mamontovskiy, Rebrikhinskiy and Troitskiy rayons, while Biyskiy DOSAAF city committee small-caliber range took in a grand total of 280 rubles over the course of a 9-month period. Earnings for the same period last year totalled approximately 5000 rubles. Tomsk and Kemerovo oblasts are invariably coming up short in their annual income plan performance.

When we look at the results of competition among rural rayons for the Altayskiy Kray championship we can get a clear idea of the cool attitude taken toward the marksmanship program. This competition was held in five zones this year. At Tal'menka, for example, only 2 of 8 teams went to the firing line, while at Pospelikha only 2 of 7 rayon all-star teams entered the competition. And the situation was no better in any of the other zones.

Reports here will frequently contain entirely imaginary figures. In Kemerovo Oblast, for example, the reports show that some 300,000 entrants participate in the GTO norm qualifications. But as we just saw, the plan here is never fulfilled. And there are many examples like this. Now this isn't just a single, isolated fudge job. What we have here is a whole cook's kitchen of fudge. It has long since been time for the people here to begin taking a serious approach to the development of their marksmanship programs, and not just on paper, but in deed as well.

8963

CSO: 1801/120

DOSAAB

EDITORIAL: SUMMARY OF 1984 TRAINING YEAR

Moscow SOVETSKIY PATRIOT in Russian 30 Dec 84 p. 1

[Unsigned editorial: "On to New Levels of Achievement"]

[Text] On the eve of a new year, in accordance with established tradition, the working people of our country are reporting to the motherland and the party on the fulfillment and overfulfillment of plan targets and socialist obligations and on the new performance objectives which have been outlined for the coming year. The closing days of the year are bringing in more and more reports that the fourth year of the Eleventh-Five-Year-Plan period has been brought to a successful conclusion, reports of success in production operations, construction, science and technology and in efforts to increase the economic strength and defense capability of the Soviet state.

Workers and activists in the DOSAAF program organize their activities around the guiding principles set forth at the June (1983) plenum of the CPSU Central Committee, among them that it is of particular importance that the word always square with the deed and that form cannot be allowed to become a substitute for substance.

And as we can now see from the performance results coming in for 1984, the defense organizations of a good number of union republics, krais and oblasts have taken these party principles to heart in the organization of their everyday activities, adopting them as guidelines and doing everything necessary to insure that they make good on their word, that they fulfill and overfulfill the plans and obligations they have undertaken for the fourth year of the Eleventh-Five-Year-Plan period.

It should go without saying, of course, that what we have achieved cannot be considered the best we can do. Our competitions should be seeing us go beyond this to attain higher levels of performance. We should be carefully observing and studying the performance of those who come in number one and then generalize and publicize the results of this study for the benefit of others. We should always be measuring ourselves against the ones who come out on top, those who are consistently successful year in, year out.

It is important that each DOSAAF committee, the committee chairman and all activists clearly comprehend the fact that success cannot be considered within the realm of possibility without actively demonstrating initiative, without taking a creative approach to a task and without good discipline and organization. Effective supervision, close checks on performance and exacting performance standards will all help achieve this.

High levels of exactingness, rigorous performance standards and an ability to recognize mistakes in a timely way and to lend effective assistance have now become the critical features characterizing the approach of the overwhelming majority of society committees. Take the DOSAAF central committee of the Belorussian SSR and the Moscow city and Kuybyshev oblast DOSAAF committees, for example. These organizations all place a great deal of emphasis upon actual work on site. Organization officials won't be caught too long at a time within the four walls of their offices. In visiting the rayon, city and primary DOSAAF organizations they are able to keep their fingers on the pulse of life, give timely, effective advice and to help avoid mistakes.

This year's successes can be seen as springboards to new levels of achievement in the last year of the Eleventh-Five-Year-Plan period. The most important thing is to move immediately, right from the very beginning of the new year, no waiting, no hesitation, to tackle our most urgent tasks with activities moving at a smooth, efficient pace and all defense society members active and well organized.

As Comrade K. U. Chernenko has pointed out, to reach out objectives, "those who have fallen behind are going to have to get themselves back on track without any further delay; those who are fulfilling their plan obligations should try to catch up with the leaders, and the leaders cannot allow themselves to slacken their pace." If they heed this advice, our defense society organizations will be able not only to consolidate the achievements of the past, but also to multiply their successes.

A number of DOSAAF committees, unfortunately, have now reached the point where form and fruitless talk which ultimately obligates nobody to anything have taken the place of effective propaganda and publicity for new ideas and approaches. The situation we see as a result is one in which there is plenty of talk about the need to adopt new ideas and approaches, more than enough general appeals, a full schedule of seminars (but poorly planned and prepared), but things seem never to get off dead center.

To make any progress in the effort to introduce new ideas and approaches, to take advantage of the beneficial practical experience of others with appeals, talk and directives alone, of course, is not enough. DOSAAF committees must always keep in mind that fact that experience is our wealth, a priceless treasure, and act boldly and innovatively in adopting new practices. This means they must be resourceful in efforts to accumulate what is most beneficial from the experience of others, come out with the necessary recommendations and then keep track of how they are being implemented.

We will not infrequently encounter situations in which an oblast or a city or rayon committee is focusing all its attention on the organizations at the top and bottom of the performance ratings. The ones at the top get all the praise and commendations, while the others come in for nothing but harsh words both in the meetings and in private conversation. The organizations turning in the average results, however, are all too often finding themselves outside the field of view of the committee.

But this isn't right. Our "middling" performers ought to be getting special attention. Experience tells us that most of the organizations and individuals in this category will not be putting forth their maximum effort, not taking advantage of all their opportunities or looking for all possible new approaches in trying to storm new heights of achievement, not making any effort to break out of their relaxed, measured routine.

In preparing for the final year of the Eleventh-Five-Year-Plan period, the Solnechnogorsk DOSAAF city committee (Moscow Oblast), V. Vatutin, chairman, undertook an analysis of the resources available to all its organizations in the vicinity of the "golden mean" in the competition performance ratings. In the process it was able to discover a number of new possibilities, new performance-enhancing potential to be tapped, and these innovations have made it possible for these organizations to begin to advance into the ranks of the leaders.

It must also be seen that the Solnechnogorsk DOSAAF city organization is also taking the proper approach in the following situation as well. Those on top in the performance ratings it has taught that they are not to wait until their lower-ranking neighbors come to them for help; they themselves, rather, are to go to those who need help, share their experience generously with them and help them solve any particular problems they may be having. This is the approach we also see being taken by A. Kulikov and O. Zadorozhnyy, chairmen of committees of leading city and rayon organizations, and others.

The 1984 story is now part of history. Nineteen eighty-five is now upon us. The year of the 40th anniversary of the great victory and a year of active preparation for the 27th Congress of the CPSU. The country's defense society organizations will be engaged in even more intensive competition under the slogan "Our self-sacrificing labors in honor of the 40th anniversary of the great victory and the 27th Congress of the CPSU!"

The approach of the glorious anniversary of the victory is already leaving its special mark on the life of the Soviet people. Shock assaults on work performance records in both city and country, military duty performance on the part of our armed forces personnel and military-patriotic activities and mass defense work on broader new scales—all these are being offered as gifts from our people in honor of the anniversary of the historic victory in the Great Patriotic War. Members of the multimillion-strong Society of Volunteers for Cooperation with the Armed Forces, too, are striving to multiply their own contribution to the effort to strengthen our beloved motherland.

Almost all our DOSAAF organizations have now undertaken their obligations and outlined objectives for the coming year. The effort to fulfill these obligations and achieve these objectives is going to help make each primary organization generally a center of mass defense activities and give these organizations the boost they need in striving to reach new levels of achievement.

Unfortunately, however, we are still seeing instances of proposed plans and obligations containing figures which are clearly too low, performance levels which can be reached without having to put forth any special effort. There is still time to take another critical look at what we have outlined for the coming year and then, if necessary, to revise our plans and obligations. This should be done now while there is still time.

As they begin the new year, the final year of the Eleventh-Five-Year-Plan period, our republic, kray and oblast defense society organizations should be putting forth their maximum effort not only to consolidate their achievements of the past, but also to move ahead and reach for new levels of achievement. This effort will stand as a worthy offering in honor of the approaching 27th Congress of the CPSU and the 40th anniversary of the great victory.

8963

CSO: 1801/120

## MILITARY HISTORY

### LT GEN SOKOLOV ON LIBERATION OF EAST EUROPE

Minsk KOMMUNIST BELORUSSII in Russian No 2, Feb 85 (signed to press 8 Feb 85)  
pp 32-40

[Article by Lt Gen V. Sokolov, chief of staff, Red Banner Belorussian Military District: "The Liberating Mission of the Soviet Armed Forces"]

[Text] Four decades separate us from the memorable events of the Great Patriotic War, from the battles historically unprecedented in scale and ferocity against the most reactionary strike forces of imperialism -- Hitler's fascism and Japanese militarism. The Soviet people and our glorious Armed Forces honorably withstood severe trials in battle with the enemies, raised high and victoriously carried through the fire of the war years the Leninist banner covered with glory, protected their socialist homeland, defended the Soviet Government and the gains of the Great October Revolution and saved the world from the Brown Plague.

In fulfilling the noble mission of liberating the peoples of Europe and Asia enslaved by the Hitlerites, the Red Army soldiers embodied in deeds the principles of proletarian internationalism, willed to us by V. I. Lenin, founder of the Communist Party and Soviet State. Vladimir Il'ich repeatedly stressed the tremendous importance of the international mission of the "man with a gun" -- the soldier in the socialist army, the defender of the working people and the unfortunate in Russia and throughout the world, merciless in battle against the exploiters and oppressors. Speaking at a meeting in the Warsaw revolutionary regiment on 2 August 1918, V. I. Lenin discussed the great honor which had fallen to the soldiers of the Red Army and proletarian internationalists from various countries fighting in their ranks to defend the sacred ideas of socialism with weapons in hands, and "to realize in fact the international brotherhood of peoples."

Help given in 1921-1922 to the Mongolian people in expelling from their country the Chinese militarists and White Guard bands; the defeat of the Japanese aggressors in 1939 jointly with the Mongolian People's Revolutionary Army in the area of the Khalkhin-Gol River; and the campaign of liberation in the Western Ukraine and Western Belorussia in September 1939 were entered as glorious heroic pages into the military chronicle of the Red Army. Soviet volunteers were in the front ranks of the fighters in international brigades, who fought in 1936-1939 against fascist reaction in Spain.

The historic mission of the Soviet Armed Forces and their noble international role were manifested with particular force in the years of the Great Patriotic War. Already on 3 July 1941, I. V. Stalin stated in the name of the VKP(b) [All-Union Communist Party (of Bolsheviks)] Central Committee and the Soviet Government, that the goal of the all-people's "Patriotic war against the fascist oppressors is not only the elimination of the danger hanging over our country, but also assisting all the peoples of Europe who are groaning under the yoke of German Fascism."

The Soviet Union rendered its main assistance to the peoples of Europe in their struggle against fascism most of all in that, in the great and fierce battles on the Soviet-German front its troops ground up the main forces of Hitler's army. For 1,080 days and nights, from the start of the Great Patriotic War until the allies in the anti-Hitler coalition opened the second front in Europe, the Soviet people essentially alone waged a titanic struggle against the main forces of Hitler's Germany and its satellites. During this time, the fundamental turning points in the course of the whole Second World War occurred on the Soviet-German front, the main and decisive front. By Spring 1944 the Red Army had destroyed more than 370 enemy divisions with overall enemy losses of more than 5.5 million soldiers and officers. "...It was namely the Russian Army," wrote Winston Churchill in September 1944, "which cut the guts out of the German war machine." Yes, it was namely on the Soviet-German front, in the gigantic, bloody battles at Moscow, Stalingrad and Kursk and on the Dnieper and other areas that the outcome of the Great Patriotic War was predetermined, before the allies in the anti-Hitler coalition opened the second front.

On 26 March 1944, as a result of the successful offensive on the Ukraine Right Bank, forces of the 2d Ukrainian Front under the command of MSU I. S. Konev reached the USSR state border, forced the Prut River and entered Romanian soil. In connection with this, on 2 April 1944 the Soviet Government issued a statement which noted that it "pursues no aims of acquiring any part of Romanian territory or changing the existing social structure of Romania, and that the entry of Soviet forces into Romania is dictated exclusively by military need and the continuing resistance of enemy forces."

The entry onto Romanian territory signified the beginning of the direct implementation of the liberating mission of the Red Army. This already created a new military-political situation and set new tasks, both in the conduct of military operations and in party-political work among our own troops. Now the Soviet command, in the course of preparing for and conducting operations, had to coordinate both with the patriotic forces of foreign countries and with units and large units of friendly allies, who were organized, trained and armed on USSR territory. As is well known, during the Great Patriotic War the Soviet Union trained, equipped and armed 19 infantry, 5 artillery and 5 air divisions, 6 infantry and airborne, 8 tank and motorized rifle, 12 artillery and mortar and 5 combat engineer brigades, as well as a number of other foreign units totalling 555,000 men. As they were ready they took part in the battles within the fronts.

In defining the mission and conduct of Soviet forces abroad, the party and state emphasized that our people and its army, seeking to destroy fascism,

drew a clear line between the working masses and the ruling cliques of the states fighting on the side of Hitler's Germany. The Soviet Union granted unlimited freedom to their peoples to decide their destiny.

The entry of the Soviet Army onto Romanian territory was met joyously by its people and inspired the soldiers of the 1st Romanian Volunteer Infantry Division imeni Tudor Vladimirescu, which was formed on USSR territory. Taking their oath on 30 March 1944, they solemnly swore to preserve sacredly the military alliance with the Red Army and to fight to liberate their country from the Hitlerites. The division was included within the 2d Ukrainian Front.

The Yassk-Kishinev Operation occurred during the liberation of Romania. The 2d and 3d Ukrainian fronts participated in it. In them, along with the Soviet armies, corps, divisions and brigades were the Romanian Volunteer Division and a Yugoslavian brigade. On 20 August, the very first day of the operation, the enemy tactical zone of defense was broken through on the axes of the main strike. Soviet soldiers displayed mass heroism. In one of the battles, for example, Sergeant A. Shevchenko, a komsomol member, destroyed 16 Hitlerites and along with his squad seized the first enemy trench. An enemy firing position held back further advance. Sergeant Shevchenko attempted to destroy it with grenades, but when this was not successful he threw himself on the pill-box embrasure and, at the cost of his own life, made it possible for the company to seize the second enemy trench on an important hill. By evening of 21 August the enemy defense was completely destroyed and on the 24th the ring around the Kishinev grouping of Hitler's troops had completely closed. Eighteen German Fascist divisions were encircled. The Romanian soldiers, refusing to fight for the interests of the Hitlerites which were foreign to them, were captured in entire subunits.

The victories gained by the Red Army in the Yassk-Kishinev operation had decisive influence on the political situation in Romania. Under the leadership of the communists, the country's progressive forces began an armed uprising on 23 August, which started a people's revolution leading to the establishment of a people's democratic system in Romania, and later to the formation of a socialist republic.

Immediately following the liberation of Romania, the Red Army extended the hand of fraternal assistance to Bulgaria, which had been drawn into the fascist bloc against the will of its people. The 3d Ukrainian Front, commanded by MSU F. I. Tolbukhin, conducted this operation. Its plan was worked out taking into account the revolutionary situation existing in the country. Even before the entry of Soviet troops into Bulgaria, the front command established contact with the People's Liberation Insurgent Army of Bulgaria and local committees of the Bulgarian Workers Party in the border area. The communists called upon the popular masses to render fraternal assistance to the Red Army. A directive of the Bulgarian Workers Party Central committee to the main headquarters of partisan forces stated: "The Bulgarian people and its armed forces must decisively transfer to the side of the Red Army, the liberator of Bulgaria from the German yoke, and together with it cleanse Bulgarian soil of the Hitlerite plunderers and their ignoble lackeys."

The Bulgarian people did not desire to fight against the Soviet Union. Recalling this, MSU G. K. Zhukov wrote: "On the morning of 8 September everything was ready to open fire, but we did not see the targets from our observation posts upon which we were to open fire. From stereoscopes, binoculars and with the naked eye we observed ordinary peaceful life on Bulgarian territory. Smoke wafted from the chimneys in populated areas and the people were busy with everyday affairs. The presence of military units was not detected. Marshal F. I. Tolbukhin ordered the forward detachments to advance. In less than a half an hour the 57th Army commander reported that one of the Bulgarian Army infantry divisions, assembled on the road, met our units with unfurled red banners and ceremonial music. After some time such events also took place on other axes. Commanders reported that spontaneous fraternization of Soviet soldiers with the Bulgarian people was occurring."

The Red Army's entry onto Bulgarian territory signaled the armed uprising prepared by the Bulgarian Workers Party. On 9 September 1944 the monarchy was overthrown and the workers took power in their hands and created a fatherland front government, which declared it was breaking relations with Fascist Germany and declared war against it. Immediately after the victory of the uprising the creation of a new Bulgarian Peoples Army began. On 17 September the fatherland front government decided to transfer the large units assigned to fight against the German Fascist invaders to the operational subordination of the 3d Ukrainian Front commander. This fraternal country was quickly freed from the Hitlerites in joint combat by Soviet and Bulgarian soldiers. The withdrawal of Romania and Bulgaria from fighting on the side of Fascist Germany and the rapid advance of Soviet soldiers throughout these countries to the Yugoslav and Hungarian borders signified the downfall of the German defense in the eastern part of the Balkans.

In September 1944 the forces of the 2d Ukrainian Front first crossed the Yugoslav border and met with the People's Liberation Army of Yugoslavia (NOAYu), which had already been fighting against the common foe for more than three years. In close coordination with NOAYu troops, the Soviet soldiers destroyed major enemy forces on Yugoslav territory by decisive strikes, liberated extensive areas from the occupiers and, developing a swift offensive on the Budapest-Vienna axis, facilitated the complete expulsion of the Hitlerites from Yugoslavia. The swift advance of the Red Army in the Balkans and the growing strikes of national liberation armies of Albania and Greece forced the German occupiers to leave these countries as well.

At the end of September 1944, Soviet forces approached the borders of Hungary. Considering the strategic importance of this country, the German Fascist command had concentrated a major grouping of more than 40 divisions here. Several defensive lines had been built along the border and in the interior of the country. Strong fortifications were created on the approaches to Budapest. On 6 October forces of the 2d Ukrainian Front, under the command of MSU R. Ya. Malinovskiy, began the Debrecen Operation. It resulted in liberating almost all of the Hungarian left bank of the Tisza River (a third of the territory of the country) from the German Fascist invaders, and completed the liberation of the northern part of Transylvania.

The Budapest Operation will always remain a glorious page in the annals of our valiant Armed Forces. The battle for the capital of Hungary was marked by extreme ferocity and stubbornness. The enemy tried to hold the city with all his forces. Hitler, who had taken over control of the operation, sent 12 additional divisions to encircle Budapest with the mission of breaking through the front of Soviet forces and restoring the situation in Hungary. Soviet soldiers, in ferocious battles, not only stopped the enemy troops tearing toward Budapest, but threw them back to their lines of departure. The bloody battle for Budapest went on from 29 October 1944 to 13 February 1945. During the course of the battles, the Hitlerites intentionally turned the plants, factories and historical buildings into ruins and blew up the bridges across the Danube River. Soviet forces, on the other hand, displaying unprecedented courage and heroism, attempted to avoid large-scale destruction in the city, and cause as little suffering as possible to the population.

On 4 April 1945 Hungary was completely liberated from the Fascist invaders. "The Soviet Army," recently noted J. Kadar, first secretary of the VSRP [Hungarian Socialist Workers' Party] Central Committee, "in heroic battles and at the cost of tremendous losses liberated the Hungarian people from Fascist German occupation. Our people will always remember this. It holds a feeling of respect and gratitude toward the USSR, CPSU and the Soviet Army and its soldiers. I can say boldly that the Hungarian people used worthily the opportunities which the liberation gave it, and that those casualties which the heroic sons of the Soviet people suffered for our sake were not in vain."

The population of Austria also greeted the Soviet soldiers joyfully. The Red Army helped the Austrian people to restore its government. On 27 April 1945 the Interim Government of Austria was formed. The country again became independent.

The liberation of Poland began in the second half of 1944 during the course of the Belorussian and Lvov-Sandomir operations. On 21 July in Chelm, one of the first Polish cities liberated from the occupiers, the people's government of the country -- the Polish Committee for National Liberation -- was formed. This day became the birthday of People's Poland. The entry of the Red Army and the 1st Army of Polish Forces onto Polish territory and their swift advance caused tremendous enthusiasm among the Polish people. The population of the liberated territories warmly greeted the Soviet soldiers and expressed their profound gratitude for freeing them from the fascist yoke. It greeted the Polish divisions of General Berling, attacking along with the Red Army, with great enthusiasm. In their army, created with USSR participation, Poles saw the might of reborn Poland.

Counter to the democratic forces, the Krayov Army and other reactionary groupings subordinated to the Polish emigre government in London incited an uprising in Warsaw on 1 August in order to seize power in the country. Unprepared, uncoordinated with the democratic organizations and Soviet command and confronting superior Hitlerite forces, it suffered defeats from the first days and was doomed to failure. Despite the designs of the reactionaries and the difficult situation at the front, the Soviet command, moved by a feeling of internationalism, decided to help the rebelling Warsaw residents and at the first opportunity began an offensive in the direction of

the Polish capital. But the commander of the Krayov Army entered into negotiations with the Hitlerites and signed terms of capitulation dictated by them. The rebellion by the reactionaries cost the lives of 200,000 Warsaw residents and led to nearly total destruction of the city. The Red Army, along with which the new Polish Forces fought against the Hitlerites, liberated Poland. The liberation of Czechoslovakia began in Autumn 1944. The approach of the Red Army to its borders activated the national liberation movement in the country. At the end of August the Slovakian National Uprising broke out there. On 1 September the Slovakian National Council, led by a presidium which communists (K. Schmidke), (G. Gusak), (L. Novomeskiy) and (D. Ertl') joined, declared that it had taken legislative and executive power into its hands. The Hitlerite command sent large regular forces against the uprisers. The Czechoslovak ambassador to the USSR appealed to the Soviet Government to give military assistance to the uprisers, and on 2 September the Stavka of the Supreme High Command issued a directive to the 1st Ukrainian Front to move to the Slovakian border and join the Slovak patriots.

The Soviet Government gave all-round assistance to the uprisers. Weapons, ammunition and medicine were delivered by air and the 2d Czechoslovak Airborne Brigade and a Czechoslovakian fighter regiment were sent to the country. In order to ease the lot of the uprisers, the Stavka authorized the command of the 1st Ukrainian Front, despite all the difficulties, to make a flanking strike through Carpathia. The 1st Czechoslovakian Army Corps, commanded by General Ludwig Svoboda, was also involved in the operation.

For almost a month the Soviet and Czechoslovakian soldiers conducted fierce, bloody battles in the mountains. The resistance of the Hitlerites was especially stubborn in the area of the Dukla Pass. Just the same on 6 October their defense was crushed. Along with the Red Army, soldiers of the 1st Czechoslovakian Corps entered their homeland. It was namely then that the motto originated which even today lives in the consciousness of every Czech and Slovak: "With the Soviet Union for All Time! With the Soviet Union and Never Otherwise!" During January-April 1945, the troops of the 4th and 2d Ukrainian fronts, which also included Czechoslovakian large units, completely freed the territory of Slovakia and a substantial part of Czech Moravia from the enemy.

In early April, Czechoslovak democratic forces created the first National Front government, in which communists occupied key posts. In connection with the formation of the government, the Communist Party of Czechoslovakia [KPCh] made an appeal to the people: "Support our liberator, the Red Army, with all forces, and enter the ranks of the new Czech Army." The workers responded fervently to the KPCh summons. Czech patriots quickly armed themselves and a national uprising flared in the country. At noon on 5 May 1945 the Prague radio station gave the signal for its onset in the capital. Fierce battles raged on the streets of Prague and Hitlerite tank divisions hurried there. Fascist aviation began to bomb the city. The situation of the uprisers worsened. Then the Prague radio station transmitted: "Red Army, Help Us! Red Army, Help Us!" The call from the Prague fighters was heard and Soviet troops rushed to the Czechoslovakian capital. Early on the morning of 9 May 1945 they entered the city. The capital of Czechoslovakia and its residents were saved from destruction.

In October 1944, in the course of the Petsamo-Kirkenes Operation, the Red Army ousted the German Fascist occupiers from the northern part of Norway. In May 1945 a landing by the Soviet Baltic Fleet liberated one of the Danish islands, Bornholm, from Hitler's invaders.

Soviet soldiers acted not as conquerors but as liberators on German soil. The Red Army command and political organs did everything so that no feeling of vengeance toward the German people would be displayed in the actions of our soldiers and officers, and so that the German people themselves would have the opportunity to decide questions of the internal structure of their state.

In Autumn 1945, fulfilling their alliance commitments, Soviet soldiers freed substantial territories of China and Korea from the Japanese invaders, thereby concluding their liberating mission in the Second World War.

Red Army soldiers carried out combat operations for more than a year and a half beyond the borders of their homeland. They liberated huge territories with many tens of millions of residents from the Hitlerites. The noble mission of the USSR Armed Forces required heroic efforts and casualties. More than a million Soviet soldiers and officers perished in liberating foreign countries, and there were 3 million total casualties to our forces, including those wounded and missing. The peoples of these countries piously revere the memory of the Soviet soldiers.

The Soviet Union rendered extensive political, material and military assistance to the anti-fascist liberating struggle of the peoples, which in Europe took the form of the Resistance. "Greetings to the peoples of Europe fighting against Hitler's imperialism," it stated in a summons by the VKP(b) Central Committee upon the 26th Anniversary of the Red Army. Patriots of Poland, Czechoslovakia, France, Greece, Norway, Belgium, Holland and Denmark! Rise up in armed struggle for your liberation from the fascist yoke! Overthrow Hitler's tyranny!"

Approximately 50,000 Soviet people, whom fate placed along that front line, fought courageously in the ranks of the Resistance Movement and the partisan detachments in Italy, Poland, Yugoslavia, France, Denmark and the other European countries. Far from their homeland, they understood that they were its representatives. Their conduct and actions were distinguished by respect for local national interests and customs, exceptional organization and discipline, iron staunchness and a high level of military skill. Only after the war did we learn the true full names of many Soviet people who fought heroically in these countries. Even today the feats of heroes from the Soviet Union who were simply called Misha, Vanya, Volodya or Vasya live in the memory of people of many states.

Twenty thousand Soviet patriots were members of partisan detachments on Polish territory. Lieutenant Vasiliy Voychenko, one of the first on Polish soil, already at the end of 1941 created a partisan group and began to annihilate Hitler's invaders. After some time his group joined the Polish detachment imeni B. Golovatskiy. In March 1944, the command of Army Ludowa awarded Voychenko the rank of captain for his courage and selflessness in battles

against the common foe. Praise could be heard throughout the Lublin region about the deeds of Captain Vasilii Volodin's partisan detachment.

The Soviet people accomplished many heroic feats on the land of fraternal Czechoslovakia. Lieutenant Sergey Vezdenov became one of the first Soviet partisans in this country. Beginning in 1943 his detachment fought in the Podebrad forests. Lieutenant Aliksey Gaynov became a hero of the 2d Slovak Brigade imeni Stefanik. He participated in 23 battles against the fascist punishers and personally killed 30 Hitlerites.

More than 6,000 Soviet citizens fought on Yugoslav soil. The Russian Shock Brigade commanded by A. D'yachenko cut a glorious path through the country. In it were soldiers who had escaped from fascist camps and joined with the Yugoslav partisans. Soviet citizens were also in 188 other units of the People's Liberation Army of Yugoslavia.

Six thousand of our countrymen fought fascists in Italy. One of them, Georgiy Kolozyan, covered a pill-box embrasure with his body during a battle. At the cost of his life he helped his comrades escape encirclement. The Italian government awarded Kolozyan posthumously the "Bronze Medal for Military Valor." Lieutenant Vasilii Porik, who was awarded the high title of Hero of the Soviet Union, became a hero of the anti-fascist struggle in France.

Not to the United States and Britain and their forces, but namely to the Soviet Union and its people and Armed Forces, as is shown both by the course of the battles and the losses of the fascist bloc powers, belongs the main and decisive role in destroying the most reactionary and aggressive detachments of imperialism and in liberating many countries and peoples of Europe and Asia from the German and Japanese occupiers. U. S. President Roosevelt and British Prime Minister Churchill frequently exalted the heroic efforts of the Soviet people and its Red Army. And in December 1944, General DeGaulle, the leader of France, whose land the Red Army did not even enter, stated very clearly: "Frenchmen know what Soviet Russia did for them, and know that namely Soviet Russia played a main role in their liberation."

Bourgeois falsifiers of history spare no efforts in defaming the liberating mission of the Soviet Armed Forces in the Second World War. Some of them reach the point of saying that supposedly Soviet soldiers and officers acted poorly toward the population of the liberated countries and destroyed material and cultural valuables. One can see assertions in the books of a number of U. S., West German and British historians that allegedly the Red Army waged a war of liberation only while battles took place on Soviet soil and that the entry of Soviet forces on the territory of other countries took place supposedly against the will of their peoples.

However, facts are stubborn things. They refute all these concoctions of the falsifiers. The people are able to distinguish lies from truth, and the slanderers will never defame the liberating mission of the Soviet Armed Forces. In carrying it out, the Land of the Soviets and its glorious army, true to the principle of proletarian internationalism, gave great and selfless assistance to the liberated countries and their populations with food,

equipment and medicine, and in repairing the economies ruined by war and bringing life back to normal.

The victory of our Armed Forces, which accomplished the just, liberating aims of the war, created favorable conditions for revolutionary struggle in a number of countries and had a stimulating influence on democratic forces. The presence in them of the Red Army disrupted imperialist plans to export counterrevolution, and helped the workers to find a revolutionary solution to urgent social and political tasks. The defeat of the strike forces of imperialism -- German Fascism and Japanese militarism -- and the Red Army's accomplishment of its liberating mission were decisive in facilitating the success of popular democratic and socialist revolutions in a number of countries of Europe and Asia.

The socialist revolution in Bulgaria, noted T. Zhivkov, first secretary of the Bulgarian Communist Party and chairman of the State Council, was victorious given the decisive assistance of the Soviet Union. Following the example of the Soviet Union and owing to its constant generous and selfless assistance, free and independent Bulgaria ended its age-old backwardness and turned into a flourishing industrial-agrarian socialist country.

As is noted in the CPSU Central Committee decree, "On the 40th Anniversary of the Victory of the Soviet People in the Great Patriotic War of 1941-1945," the destruction of German Fascism, and then Japanese militarism, had the most profound influence on the entire course of world development. Favorable conditions were created for the struggle of the laboring masses for their social and national liberation. The positions of progressive, democratic and peace loving forces were strengthened, and the influence of the communist and workers' parties grew. The process of disintegration of the imperialist colonial system, which ended in its downfall, was hastened.

Imperialism, as a result of the defeat of its strike forces, was deprived of the opportunity to dictate with impunity the fate of the peoples, and had to take into account the might of the USSR and other socialist countries.

Historical experience teaches us to preserve constantly a high degree of vigilance toward the intrigues of imperialism and to be prepared for any turn in international relations. This is especially important today, when the tense situation which has existed in the last few years through the fault of the reckless adventuristic actions of the aggressive forces of imperialism, remains extremely dangerous. As before, the U. S. administration is relying on military force, and on achieving military superiority and embroiling other peoples in its agenda. The development and deployment of nuclear missile and other types of weapons of mass destruction is continuing in the United States, and represents a special danger to the cause of peace. The aggressive policy of imperialism has directed its spearpoint first of all against the Soviet Union and its friendly fraternal socialist countries, in which U. S. imperialists see the main obstacle to their pretensions to world supremacy.

In response to the growing threat, the socialist states display concern for strengthening their armed forces and improving the combat readiness of the fraternal armies. This year, along with the 40th Anniversary of the victory

over fascism, the peoples of the fraternal socialist countries also mark the 30th Anniversary of the formation of the Warsaw Treaty Organization. This defensive military-political alliance of the countries of the socialist community serves as a reliable shield in the struggle to prevent nuclear war and frustrate attempts of the most reactionary imperialist circles to organize a "crusade" against socialism.

In difficult military-political conditions, aggravated by aggressive circles in the U. S. and its NATO partners, soldiers in the Soviet Armed Forces, including the personnel in the Red Banner Belorussian Military District, see it as their sacred duty to the party and people to defend reliably, shoulder to shoulder with the soldiers of the fraternal armies, the great gains of socialism, and to be constantly in combat readiness.

Our patriotic and international duty so commands us.

COPYRIGHT: "Kommunist Belorussii". 1985.

9069

CSO: 1801/184

## MILITARY HISTORY

### MOSCOW TV DOCUMENTARY ON WORLD WAR II; STALIN MENTIONED

LD201238 [Editorial Report] Moscow Television Service in Russian at 1640 GMT on 19 March presents Part I of a documentary entitled "Strategy for Peace: Memoirs, Documents, Newsreels." The 80-minute segment presented on 20 March begins with an introduction by Soviet TV newsreader Igor Kirillov, who says that the war was "a battle between the forces of socialism and the spearhead forces of imperialism." He adds that the documentary is about the leadership of the war and the "inseparable links between this leadership and the millions of defenders of the Soviet homeland."

Kirillov concludes by saying that the program is not a history of the war per se but an attempt, through the use of documents and archive newsreels to provide "irrefutable arguments against the tendentious fabrications of Western historians who are still trying to distort the true picture of the last war and to belittle the Soviet Union's role in the great victory over the most vicious and bloody enemy of the 20th century, fascism."

An unidentified narrator then begins recounting the events that led up to the invasion of Poland in 1939, followed by a close look as to why the Soviet Union concluded the Nonaggression Pact with Germany; namely, that negotiations with Britain and France concerning collective security against Hitler were deadlocked. This segment of the documentary ends with a recounting of events leading up to the 12 March 1940 USSR-Finland Peace Treaty.

The film includes the following references to Josef Stalin:

1. An extract from a conversation between Stalin and People's Commissar for Armaments Vannikov in the Kremlin during which Stalin stressed the need to put Soviet industry on a war footing.
2. An extract from marshal of Soviet Union G. K. Zhukov's memoirs in which he recalls a conversation with Stalin, during which the latter said the French and British Governments will pay for their short-sighted policy of turning Hitler against the Soviet Union.

3. A conversation in the Kremlin between Stalin and aircraft designer Yakovlev reported by the latter in his memoirs. According to Yakovlev, Stalin instructed him to make a comparison of the latest Soviet and German warplanes.
4. An extract from Marshal of Soviet Union K. A. Meretskov's memoirs, recalling a conversation in which Stalin told him that the USSR might be able to keep out of the war until 1942.
5. An 18 February 1941 message from Pavlov, commander of the Western Military District, to Stalin, Molotov, and Timoshenko, saying that the USSR must prepare for war in the West during 1941.
6. An extract from Zhukov's memoirs recalling a conversation with Stalin "after saying nothing, just smoking for a long time" said that mobilization would mean war.

The final credits indicate that one of the film's scriptwriters is Pavel Zhilin. The principal consultants were Army General P. N. Lashchenko and Lieutenant-General D. A. Volkogonov. According to the final caption, material from the USSR Ministry of Defense film studios, USSR Foreign Ministry archives, the USSR KGB and the Institute of Military History of the USSR Ministry of Defense were used in the film.

The program ends by noting the next film in the series entitled "A Summer of Menace," will be shown at 1945 Moscow time on Friday, 22 March.

CSO: 1801/193

FOREIGN MILITARY AFFAIRS

U.S. SAID TO PLAN COMMUNICATIONS TOWERS TO SURVIVE NUCLEAR WAR

LD011124 Moscow Domestic Service in Russian 0830 GMT 1 Apr 85

[Text] It has become known that the U.S. Defense Department has drawn up a plan to erect special communications towers filled with electronic equipment in the United States, which would be capable of surviving a nuclear war. It is planned to build the 90-meter-high structures, made out of specially heat-resistant and strong materials, in order to enable the White House to coordinate the actions of its forces and to control what might remain in the country after an exchange of nuclear strikes.

In its essence, a rather awe-inspiring ideas, isn't it? Washington is in fact taking special steps to put its misanthropic nuclear doctrine into practice. One of the places that the Pentagon intends to put one of its sinister communications towers for a future war is the U.S. city of Amherst, Massachusetts. The plans by the U.S. war department became known to its inhabitants, and naturally gave rise to a proper panic, for it is quite evident that the structure will turn the town into a target for the inevitable nuclear counter-strike. A year ago the activists of the antiwar movement at Amherst declared their town a nuclear-free zone. Now they have put pressure on the city authorities which resulted in a resolution being adopted protesting against the erection of the communications tower for nuclear war. The resolution sharply criticized Washington's reckless policy.

And so on the one hand there are the militarist plans which put the lives of the U.S. population and the whole planet at risk, and on the other hand there is the action by the activists in the antiwar movement. Evil and reason. And it is clear that there is no alternative to the stance of the activists in the antiwar movement. A scorched desert with a Pentagon communications tower standing alone pointed up into the semi-darkness of the freezing sky is hardly a place that man could live in. Only progress at the Soviet-U.S. talks in Geneva on nuclear and space weapons is capable of saving mankind, including the inhabitants of Amherst, from the real danger of nuclear catastrophe. That is why Washington, instead of preparing for nuclear war, should embark in a responsible manner without tricks or subterfuge on implementing the historic tasks facing the talks in Geneva, to which progressive mankind looks with hope.

CSO: 1801/193

FOREIGN MILITARY AFFAIRS

CONTENTS: ZARUBEZHNOYE VOYENNOYE OBOZRENIYE NO 12, DECEMBER 1984

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 12, Dec 84 (Signed to press 10 Dec 84)

TABLE OF CONTENTS

40th ANNIVERSARY OF THE GREAT VICTORY

Rzheshevskiy, O. - History's Falsifiers in Imperialism's Service.....3

GENERAL MILITARY PROBLEMS

Cherkov, S. - Lasers in Military Affairs.....9

Sokolov, D. - Some Problems of Mathematical Modeling  
in the U.S. Armed Armed Forces.....12

Korablev, A. - The CIA Against Africa.....17

Nikolaev, L.; Shengalev, O. - Programs for the Development and  
Production of Aviation Equipment in the USA.....21

Zakharov, G. - The Main Trends for the Building of  
Danish Armed Forces, 1985-1987.....28

Stepanov, V. - Providing Fuel for American Interventionist Forces.....29

GROUND FORCES

Slobodenko, A. - "Deep Strike" in a Modern Operation.....31

Sergakov, L. - Armored Engineer Vehicles.....35

Litvinenko, V.; Miroshnikov, A. - Employment of Technical Resources  
for the Security of Night Combat Operations.....40

Aid to the Commander. FRG Interceptor-Antitank, Airborne and  
Mountain Infantry Companies.....45

Tank Tactical and Technical Characteristics of Capitalist Countries' Armies.....	46
--	----

#### AIR FORCES

Volin, V. - Helicopters' Air Combat.....	49
Veselovskiy, G. - The Exercise "Central Enterprise - 84".....	54
Karenin, I. - Aviation Ordnance for Striking Airfields.....	55
Andreev, L. - British Air Force Aircraft and Helicopter Wing Markings..	63
Menshikov, M. - Joint NATO Baltic Straits Zone Air Force Commander.....	67
Check Your Knowledge. Capitalist Countries' Aircraft.....	68

#### NAVAL FORCES

Afanasev, V. - The U.S. 7th Fleet.....	69
Vostrikov, V.; Volobuev, V. - Employing Anti-Ship Missiles.....	74
Vishnevskiy, A. - Landing Ships and Craft of Japan, South Korea and Taiwan.....	78
Mochalov, R. - Underwater Equipment for Combatting Mines.....	81
Yurin, Yu. - Japan's New Guided Missile Destroyer HATAKAZE.....	86

#### INFORMATION ON EVENTS AND FACTS

NATO Navies' Electronic Countermeasures Group * They Strengthen the Air Defense System * Japan's Armed Forces' Central Command Post * South Africa's Multiple Launch Rocket System VALKIRI * The C-17 Military Transport Aircraft in the Pentagon's Plans * American Short Wave Transmitter * Teletype for the U.S. Air Force.....	87
--	----

FOREIGN MILITARY CHRONICLE.....	91
---------------------------------	----

LIST OF THE JOURNALS's PUBLICATIONS IN 1984.....	93
--	----

COLORED INSERTS

In-Flight Refueling the TORNADO-GR.1 Tactical Fighter \* Tanks  
of the Capitalist Countries' Armies \* French PAP104 Wire-Guided  
Underwater Device \* Italian Wire-Guided Underwater  
Device MIN

COPYRIGHT. "Zarubezhnoye voyennoye obozreniye", 1984.

9355

CS0: 1801/142

## FOREIGN MILITARY AFFAIRS

### LASERS IN MILITARY AFFAIRS

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 12, Dec 84 (Signed to press 10 Dec 84) pp 9-12

[Text] The development of laser weapons in the U.S., as the foreign press reports, has been going on since the 1960's. Similar research began in other more developed capitalist countries somewhat later.

American specialists have conducted tests of experimental weapons which demonstrated the possibility of destroying air targets with laser rays. The latest of these tests took place in 1983. In them, supersonic sidewinder air-to-air missiles and BQM-34A subsonic guided drones were shot down by a 400 kW gas-dynamic laser mounted on board a special flying laser laboratory (on a heavy transport aircraft). The latter were intercepted during a flight over the ocean where the repelling of a low-flying antiship missile attack was simulated.

The foreign press notes that the above-mentioned device is not a prototype, but more of a combat model of a laser weapon based neither on its construction nor its missions. It was needed to demonstrate the very fact that it was possible to destroy targets with laser emissions, as well as being a subject for further research.

The operation of this fundamentally new weapon is based on superpowerful light emissions. Utilizing the highly concentrated energy of powerful lasers, produced by highly precise large diameter optical systems, a finely-focused laser ray produces extreme heating, melting or vaporization of material on the target's outer surface leading to its destruction. Since the energy in this case is transmitted to the target at the speed of light, the destructive effects of laser weapons are produced almost instantly (except in those instances in which conditions require extended heating to destroy the target). From this it follows that the length of the target destruction cycle, using lasers, is mainly determined by the time needed for guidance. When coupled with quick-response precision devices for aiming and guiding the laser beam, such a weapon, in the opinion of foreign specialists, would be an effective means to combat maneuverable highspeed objects under complex conditions characterized by the presence of a large number of targets operating from various directions and the use of false targets.

At the same time, considering that a laser weapon is not yet an all-weather device, foreign experts believe that in the majority of cases it will perform as an auxiliary weapon and be used jointly with conventional modes and systems of armed combat. In their opinion, a laser weapon operating in the atmosphere is intended to execute the missions of air defense units and detachments, to destroy electro-optical devices of ground and air targets and to blind personnel, to intercept ballistic missile warheads as part of surface air defense systems, and possibly to serve as a ship or aircraft defensive weapon. A space laser weapon could be used to defend one's own military ISZs (Iskusstvennyy Sputnik Zemli = artificial earth satellite) and intercept enemy ISZs, and to destroy ballistic missiles and aircraft in flight from space.

Fundamental theoretical research is being conducted abroad in order to create such a weapon; propagation of powerful laser emissions in the atmosphere is being studied; superpower lasers as well as the methods and systems to guide the beam to the target are being developed; research is continuing on the interaction between high powered emissions and matter; and military targets' vulnerability of to the destructive effects of laser weapons is being determined. A great deal of attention is being devoted to developing chemical, electrical-discharge, and gas-dynamic laser, capable, in the estimation of foreign specialists, of developing continuous power up to several megawatts; glass optical elements in excess of 4 m in diameter for optical output systems; and beam guidance systems providing an accuracy in the microradian range.

Significant efforts are being devoted to laser technology research in the area of the results of which could be seen in weapons in the next 10-15 years. Great hope in this area is placed on creating shortwave lasers, whose beams could be formed into rays with less divergence and more effect on the target being destroyed. They include excimer laser electro-discharge lasers, free electron lasers, x-ray lasers with nuclear pumping. In order to develop the latter, according to foreign press reports, a series of underground nuclear tests is being conducted in Nevada.

According to American military specialists' predictions, x-ray lasers, when modified, can find wide use in strategic space laser weapon systems. In addition, foreign specialists believe that from a cost-benefit standpoint, laser systems cannot yet surpass traditional weapon systems because of their high cost, poor reliability and the great dependence upon meteorological conditions for their destructive capabilities. Besides this, defense against the destructive aspects of laser weapons is achieved in a relatively inexpensive way. Thus, the foreign specialists propose to use more thermal resistant materials and protective coverings. The natural turbidity of the means of ray propagation, for example, as a result of quickly throwing up a smoke screen, produces a significant decrease in the effective, destructive range of a laser weapon. Electro-optical devices and the eyes of personnel are protected by special filters or glasses, which selectively dampen only laser emissions.

From the foreign press we find that the U.S. proposes to conduct various types of new experimental laser weapons tests in the coming years.

In recent years there have been intensive discussions abroad on the possibilities for space laser weapons. The U.S. imperialists are exerting great efforts to widely militarize outer space in order to carry out their aggressive plans. It is thought that the use of lasers is more likely in outer space, where there is no atmosphere. Those who favor the arms race, especially in the U.S., insist upon a more rapid development and advanced deployment of a space laser weapon system. They assert that the creation of military space stations could significantly affect the strategic balance in armaments between the USSR and the U.S. and give an advantage to the American side, which is already endeavoring to deploy such weapons in space.

A powerful incentive to the campaign for discussion of the potential for a space laser weapon came with President Reagan's March 1983, speech in which he disclosed his position on the readiness of the U.S. to begin developing an anti-missile defense system, supposedly capable of assuring security against a nuclear counter attack. Without revealing details of how such a system functions or its military uses, not considering the vulnerability of space laser stations and their combat control units, and based only on present and, to a large degree, anticipated, technological achievements, the supporters of the arm's race are presently exerting massive pressure on the U.S. Congress in order that a significant amount of additional funds are ear-marked for these purposes.

As the foreign press reports, in January 1984, President Reagan signed Directive 119, initiating an expanded research program to create new weapon systems in space. It was reported that they will be modeled upon directed energy weapons, (lasers, beam, and other types). Targets for the weapons could be not only missiles, but also other space, air, and ground targets. The funding for development of lasers to be used in space and from space against ground targets is supposed to increase more than 12-fold by FY-1989. In the next five years plans call for more than 20 billion dollars, and by the year 2000, 95 billion dollars for construction of these armed combat systems.

At the same time, the real basis of future work on space laser weapons will be the advanced directed research being conducted under the Pentagon's Triad program. It combines three projects: "Alpha" - the creation and testing, in 1987, of a chemical cylindrical laser with an average constant output of up to 2MW; "Load" - the development of a 4 m combined optical system, and its testing under space conditions in 1988; and "Talon Gold" - production of an electro-optic-type laser weapon detection and tracking aiming device and testing it on a multipurpose space ship.

There is a proposal to unite, in the future, the Triad program technologies into one unit devoted to military space laser station test demonstrations. In the opinion of U.S. Senator M. Wallop, its development could be completed by 1990. However, as Western specialists state, before the development of military space systems is possible, it is necessary to solve the complex technical problems related to achieving the necessary advanced characteristics of the station's basic subsystems; achieving a working orbit and reliable long term operation and service; protecting it against potential intercept and neutralization means while it is being deployed, as well as while on station

and combat operation. Finally, reliable guidance of such a military system under war conditions is a highly complicated matter.

Foreign experts estimate that the cost of building a space laser weapon system will exceed the cost of any weapon system developed to date and could reach several tens to hundreds of billions of dollars, which is especially beneficial for the leaders of the U. S. military-industrial complex.

The foreign press emphasizes that in the West there is no single viewpoint on the development potential and efficiency of using such weapon systems. Those who favor their accelerated development, as a rule, are individuals planning to use the completion of such expressive programs as a means of political and economic pressure on the USSR; or representatives of large monopolies interested in such work for financial reasons. The more cautious specialists focus their attention on the technical difficulties and recommend laser weapon production only after its operational efficiency is proven. However, the majority of foreign experts are of the opinion that the areas of military use of laser devices will continually expand, and their use in weapons and military equipment will lead to the creation of even more effective means of armed combat.

Under these conditions, the CPSU and Soviet government devote special attention to further strengthening the defensive capabilities of our Motherland. As Comrade K. U. Chernenko said in his speech at the "Hammer and Sickle" Factory, "As long as military and political tension exists, as long as the U.S. and NATO nuclear missile danger hangs over our country, we must keep our powder dry, be always on guard so that the correlation of forces does not change in favor of imperialism, and we must not seem weaker."

COPYRIGHT: "Zarubezhnoye voyennoye obozreniye," 1984.

9355

CSO: 1801/142

FOREIGN MILITARY AFFAIRS

MATHEMATICAL MODELING IN THE U.S. ARMED FORCES DISCUSSED

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 12, Dec 84 (Signed to press 10 Dec 84) pp 12-17

[Article by Col D. Sokolov, candidate of technical sciences; "Several aspects of mathematical modeling in the U.S. armed forces"]

[Text] In a bid to attain military superiority over the Soviet Union, the U.S.'s imperialist circles are making a concerted effort to enhance the strength of their armed forces, which are equipped with the most modern types of weaponry and military technology. Computers and mathematical modeling are widely used in elaborating plans to develop them still further. As far back as the early 1960's, the Pentagon showed an interest in mathematical modeling and financed the development of a large number of models, which, it was believed, could be used to ascertain the combat effectiveness of forces and to plan and anticipate the outcome of future wars. The Defense Department's scientific-research facilities first drew upon such models in 1959-1961, and, by the mid 60's, made use of them on a regular basis. By the early 1970's, official catalogs contained some 450 operational models, which were employed not only in scientific pursuits, but in day-to-day staff and administrative functions as well. Currently, more than 700 of them are used in various components of the U.S. Armed Forces. In 1981, the Joint Chiefs of Staff (JCS) had at its disposal nearly 180 models. On the basis of press statements by American officials, mathematical models have been used as a basic tool in daily staff and administrative functions since the late 1970's.

In the U.S. mathematical models are classified by a number of criteria: the mathematical device being used; the purpose; properties; level of modeled functions and so on.<sup>1</sup> In terms of purpose, they can be research oriented or intended for instruction/training. Furthermore, the term "research model" underscores the exploratory aspect of an endeavor as opposed to informational or computative pursuits, which merely enable one to automate a number of routine processes and are widely used in administrative and staff assignments. In the U.S., research models are used in the missions of the armed forces' planning and command components, while the instructional/training [models] are used for war gaming and in support of the learning process.

The following models are categorized in terms of the features of the modeled functions: combat operations, command and control (including resource

allocation), deployment of the armed forces and rear service support (including transport models). Based on their [functional] levels, they are divided into tactical, operational and strategic [categories].

As reported in the American press, mathematical models covering all [functional] levels have been developed for each branch of the armed forces and each component of the Defense Department. For example, the number of models used by the JCS is presented in Table 1. In it, operational models for air defense systems and components are relegated to the air force if they are not part of the ground forces' or navy's organizational structure. Those which depict the activities of army aviation and ground operations by the marines are ascribed to the ground forces and, in the case of sea transfer and amphibious marine landings, they are attributed to the navy.

Table 1. Number of Mathematical Models

Combined Forces and Branches of the Armed Forces	Modeled Functions		
	Combat Operations	Combat Support, Command, Control, Communications	Deployment, Redepolyments, Rear Services
Strategic Strike Forces	11	14	1
Combined Forces	36	10	9
Ground Forces	22	6	9
Air Force (Including Air Defense)	21	5	6
Naval Forces	19	4	5
TOTAL	109	39	30

As Table 1 indicates, there is considerable variation in allocating models based on the branches of the armed forces. Some 31 percent of the total number depict operations by diverse components from at least two services (most often, this scenario involves ground and tactical aviation components). Approximately 21 percent portray operations by ground forces, 20 percent by the air force and air defense elements, and 16 percent by the navy. Only 14 percent of the models deal with the strategic strike forces. Furthermore, half of those are designed for targeting and evaluating the effectiveness of nuclear strikes.

The number of models depicting individual operational facets of the armed forces tends to vary. Nearly two-thirds of the overall number (more than 61 percent) involve combat operations of various levels, to which the U.S.'s military leadership has devoted particular attention in the past decade. Nearly 20 percent focus on models for combat support and C<sup>3</sup>. Moreover, half of these is intended for computations to determine required force and structure levels and their optimal allocation, particularly for the strategic strike forces. Only 17 percent describe possibilities for deploying the armed forces, redeploying units and providing material-technical support (MTO). The

Western media note that over the past five years, there has been a shift in the focal point of the models. Thus, as recently as 1977, models of combat operations comprised 52 percent, while those dealing with MTO amounted to 26 percent. However, while in absolute terms, the number of MTO models at present remains virtually unchanged, their relative position has declined because of the rapid rate at which combat-operation models have been adopted.

According to Pentagon specialists, the great potential for using models within DoD components lies in their highly favorable functional properties. First and foremost, this refers to their reliability, i.e., the small number of malfunctions and stoppages during computer-assisted problem solving. Reliability is achieved by using sophisticated algorithmic languages, established operational systems, and the enormous capabilities of modeling's technological base (computers, input/output devices, communication channels, etc.). Another functional indicator is the model's rapid action, determined by the time required for running it (solving a single version) on the machine. This indicator is a function of the level of the model, the amount of source data, the complexity of the algorithm and the computer's transfer rate. A major role is also played by such features as the effort needed for assembling, formatting and inputting the source data and the time spent on analyzing the results of the modeling. Foreign press accounts emphasize that, as the number of models increases, users and consumers impose ever-more stringent demands on their functional characteristics to ensure that they correspond to the pace of activity in which the Defense Department's planning and command components are engaged.

In recent years, the areas in which modeling is used have increased substantially. According to the military leadership, these areas are:

- planning force projections for the armed services, primarily as regards general-purpose and "immediate reaction forces" and with specific attention to determining levels of weaponry and military technology;

- planning combat deployment of forces and naval assets and forecasting the outcome of military actions, particularly the losses of personnel and equipment;

- planning the MTO of the armed forces and evaluating the reserves for replacing losses incurred during combat operations;

- preparing source data for conducting strategic studies and elaborating military doctrine;

- training the command staff.

American military specialists believe that modeling is most effective in determining the personnel levels of field units (chasti) and combined ground force components (soedineniya) in a variety of combat conditions and in calculating required levels of personnel and equipment, as well as the composition of large-scale forces in a TVD. It [modeling] is of considerable benefit in identifying promising weapon systems, particularly at the stage of developing requirements for their tactical/technical specifications and

indicators of combat effectiveness. For planning the purchase of weapons and military technology, models have been designed so as to ensure an optimal structure level, depending on the tasks which need to be solved. Requirements for the quantitative size and structure of reserve components are developed by considering the results of modeling operations in various TVD's. This enables one to assess potential losses as a function of force correlations and the distinctive features of combined-arms operations. These same indicators are the basis for calculating the required volume of material-technological assets and the optimal allocation of available resources. One should note that transport missions in redeploying troops and military cargo are almost completely solved with the aid of appropriate mathematical models.

Modeling also plays an important role in instructing and training command staff personnel of tactical units. A large number of computer-aided war games has been developed which enable one not only to carry out all operational and tactical calculations, but also to project the combat situation on individual and unit-wide screens. In particularly widespread use are games involving two competing sides. These [games] are based on appropriate combat-operational models, which enact decisions made by the players. On this basis, special simulators are developed to provide officers at tactical levels with the skills to assess a situation, make decisions and plan and direct combat operations. The simulators' mathematical capabilities make it possible to consider, in addition to indicators of the combat situation, such factors as the locale, meteorological conditions, intelligence input, performance of the REB (remontno-ekspluatatsionnaya baza - maintenance and operation base ), etc. They also permit the intermediary [i.e., the control group - trans.] to establish the starting scenario for the players and to introduce various inputs, including unexpected developments, while the game is in progress. Such war games are most widely used in the ground forces, where they are a mandatory facet of the training and instruction which battalion and brigade commanders undergo. American specialists believe that wargames played by two opponents permit the command structure to acquire skills in situation assessment and decision making. In addition, using computers during games substantially increases the number of training sessions.

Experience, however, has shown that a number of models are unsuitable for application in the area of military planning. For example, desired results were not obtained from mathematical models in assessing and forecasting the development of the political-military situation or in elaborating strategic decisions. The U.S.'s military leadership believes the basic reason for this is that, in these areas, a major or at times decisive, role is played by factors which do not lend themselves to formulations and which basically cannot be evaluated in quantitative terms.

On the basis of a functional analysis of mathematical modeling, Defense Department components and armed forces branches drew conclusions about the effectiveness of modeling. It is generally believed that the process of conducting operational strategic calculations during military planning has been improved and that command staff games and instruction have been developed more expeditiously. Use of mathematical models and computers has led to more than a four-fold decrease in the time required for preparing data needed by staff and planning components. For example, calculations for combined

redeployments of forces and military cargo were now made five times more rapidly. Thanks to optimal distribution of payloads, the number of transportation assets was decreased. The time for redeploying them was reduced by improving timetables and route selection. The possibility now arose during the preparatory and decision-making stages to consider a greater number of indicators than those associated with traditional methods. The Pentagon's experts note that, by applying third-generation models to TVD<sup>2</sup> operations, one can draw upon 10-12 indicators to project anticipated materiel losses. By contrast, earlier calculations were limited only to tanks and artillery assets. The number of indicators taken into consideration has increased by an average of 40-50 percent. This has added to the validity of the decisions reached.

The U.S.'s military leadership contends that despite the growing cost of developing models and putting them into operation<sup>3</sup>, mathematical modeling makes it possible to save substantial financial resources. This is achieved by using it [modeling] to obtain a range of data which were previously acquired during and subsequent to military exercises, field and on-site testing. In developing a new weapons system, modeling is widely used to scientifically substantiate required tactical and technical features and to evaluate its effectiveness in a combat environment; to narrow the range of options during the trial-design phase of projects; and to calculate, during the planning stage, the technical servicing indices for weapons systems within the armed forces, etc. It enables one to decrease the number of tests conducted on combat equipment by performing preliminary evaluations and selecting the most important and decisive program testing phases and indices. Thus, when testing the effectiveness of anti-tank guided missiles with the TETAM (Tactical Effectiveness Testing of Anti-tank Missiles) program, the use of models resulted in a 12 percent decrease in the program's initial cost.

Another way of reducing outlays involves creating models to expand the capabilities of various simulators. For instance, air force simulators have brought about a significant decline in the number of training flights. As a result, costly aviation assets are not expended. American military experts believe that financial and material resources savings are a primary benefit that comes from using models in military organizations' mission areas.

As noted in foreign press reports, mathematical modeling has provided enhanced reliability in forecasting the nature of combat operations in future wars, particularly as regards the scope of anticipated losses.

One notes that, initially, military experts were very skeptical of the results of future combat operations as provided by modeling. This was so because the data obtained departed in a significant way from the experiences of World War Two and the Korean War. In addition, individual conclusions produced an extremely negative reaction. Thus, certain experts rejected the possibility of a sharp increase (up to 8-fold) in combat materiel losses for the ground forces, especially tanks and anti-tank systems.

Others felt that projected aviation losses were unjustifiably understated since, it was said, the presence of anti-air guided missiles and advanced air

defense control systems would produce a sharp increase in losses. The effectiveness of helicopters as a combat system was considered questionable.

However, the lessons learned from a number of local conflicts, first and foremost the 1973 Arab-Israeli War, fully substantiated the results [achieved by] modeling and caused the military leadership to re-examine its views about the reliability of data obtained from modeling combat operations. Since 1974, there has been a sharp increase in these types of models, which are used by both the U.S. Department of Defense's research and planning components. Along with developing a new generation of mathematical models for TVD operations, much field testing is being conducted to evaluate and refine source data for modeling. Combat operation models have become the basic vehicle for evaluating future losses and for calculating required personal reinforcement levels and needed reserve stocks of military equipment and other material support.

Various Defense Department components as well as the armed forces provide a market for mathematical models. The U. S. Army orders the greatest number of them. Of the 178 models recommended for use by the Joint Chiefs of Staff, 69 (39 percent of the total number) were financed by the ground forces. The Navy funded the development of 30 models (17 percent), the JCS 16 (9 percent), and the Defense Department's Defense Nuclear Agency (DNA) 14 (8 percent). Fourteen models were ordered by the Office of the Secretary of Defense (OSD).

Organizations using a model are not always the ones which financed its development. The JCS, for example, uses 26 models, even though its funding was limited to only 16 of them (Table 2). One should keep in mind that the aggregate number of models in the table exceeds that presented in Table 1. This is because some of them are used concurrently by several organizations.

Broad use of models in various military organizations is stimulated by periodically publishing catalogues which contain information sufficient to assess the intended purpose of a model and the technical prospects for achieving it.

Thus, the catalogue published from time to time by the JCS provides the following information:

- the complete and abbreviated versions of the model designator;
- the organization ordering it, the name of its developer and the primary users;
- a brief functional and technical description of the model indicating its purpose, performance range, parameters taken into account, modeling approach, required scope of source data, etc.;
- the model's limitations;
- the program language, the computers and operating systems used, the type of device for data input/output, the computer's memory capacity;

--basic operational properties (the time need for problem solving, the time or effort spent in preparing a data base, formalizing it, etc);

--the utilization frequency;

--the name and address of the designer (developer) and the agency which ordered it.

Table 2. PRIMARY USERS OF MATHEMATICAL MODELS

Consumers	Number of Frequently-Used Models		
	For Combat Operations	For C <sup>3</sup> Combat Support	For Deployments and Rear Service Support
Department of Defense Including:	7	19	8
OSD	1	6	5
DIA	1	3	2
DNA	4	2	1
DCA	1	8	--
JCS	13	3	10
Army	24	16	22
Air Force	10	2	4
Navy	13	4	8
NATO's Supreme High Command's Staff Technology Center	1	2	2
DoD's and the Armed Forces Scientific-Research Centers	18	6	8
Other Organizations	3	4	3

Statistics in the use of mathematical models presented in American publications show that, in recent years, the extent to which they have been used in military planning has risen sharply.

If, in the early 1970's, a single model was used for problem solving several dozen times per year or even less, the current frequency rate comes to several hundred times per year. Thus, in 1981 the Vector series TVD operational model was used more than 300 times, i.e., on virtually a daily basis.

At the same time, American experts believe that a number of problems in the use of mathematical models remains to be solved. One of these involves

creating a reliable data support system. At present, for the combat operations models alone, the Department of Defense has more than 70 data bases, each with its own features. The information which they contain is often contradictory. Moreover, serious concerns are being voiced about the reliability of a portion of the data, since they [the data] cannot be confirmed by past experience and were not validated during [firing] range and field testing. Because of this, top priority is being given to reducing the number of [data] bases, testing, verifying and standardizing the information that they contain. Along with these efforts, measures, primarily of an organizational nature, are being undertaken. According to statements by foreign experts, they will provide the opportunity for upgrading a model's data support system in a dramatic way within the next few years.

Another task focuses on using a mathematical model for further improving and standardizing documentation. It must permit the user to assess the computer's operational capabilities, the performance range and intended approach; to present succinctly its failings and limitations; and to present a composite of the model's adequacy with regard to the function being modeled. It is also very important for the user to be aware of the features, completeness, and reliability of the data bases used with it. The consensus is that, only when all these conditions have been met, can the user determine the degree to which the model is suitable for the problem being solved, the reliability of the modeling results, and the area in which they can be applied.

Without ascribing a final value to mathematical models in the context of military planning, the command structure of the U. S. Armed Forces looks upon them as an operational tool for decision makers. It [the command structure] also assures that the role of modeling in the functional activities of the Defense Department's organizations and components will steadily increase.

1. For further details see: "Zarubezhnoye voyennoye obozreniye," No 8, 1980, pp. 27-28. Ed.

2. For additional details about these models, see: "Zarubezhnoye voyennoye obozreniye," No. 1, 1982, pp. 27-34. Ed.

3. For details concerning modeling cost factors see: "Zarubezhnoye voyennoye obozreniye," No. 3, 1982, pp. 18-19. Ed.

COPYRIGHT: "Zarubezhnoye voyennoye obozreniye," 1984.

9355

CSO: 1801/142

FOREIGN MILITARY AFFAIRS

'DEEP ATTACK' IN MODERN OPERATION DISCUSSED

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 12, Dec 84 (Signed to press 10 Dec 84) pp 31-35

[Article by Maj Gen A. Slobodenko; "The 'Deep Attack' in a Modern Operation;" passages rendered in all capital letters printed in boldface in source]

[Text] The U.S. adopted a new military strategy in the 80s, which the American leadership characterized as a strategy of "direct confrontation" with the Soviet Union. The fundamental contents of this are achievement of military superiority over the USSR, active opposition to it in the international arena, a broad attack on socialism, and employment of military force by the United States as the principal means of accomplishing its global objectives. Thus, the armed forces have the mission to be prepared for combat actions in any theater, employing conventional as well as nuclear strikes. This has led to the creation of qualitatively new weapon systems, including smart weapons, design of organizational and staff structures for formations and units, and a search for more decisive methods of conducting combat operations.

As reported in the foreign press, the current opinions of the American military leadership on the conduct of combat operations are recorded in the Field Manual FM 100-5, published in 1982. There it is stated that the introduction of new types of weapons and combat equipment, especially smart munitions; increasing mobility, especially as a result of equipping formations and units with army aviation; as well as the development of tactical aviation and wide use of tactical (operational) air-mobile assaults; are leading to a change in the nature of ground combat operations in future warfare.

Based on this is the belief that it is possible to attack not just the enemy first echelon formations and units, but simultaneously to strike the second echelons and reserves, that is the full operational depth of his forces.

This position is officially reflected in the U.S.-developed concept of "air-land battle"<sup>1</sup> which military specialists consider as the basic doctrine of land forces. The manual states that under modern conditions, every operation (battle) by ground forces (offensive or defensive) will be air-land. This concept, it is further noted, requires a new approach to the organization and conduct of combat operations, the basic content of which is greater utilization of the growing armed forces' capabilities.

As reported in the foreign military press, the idea of conducting this type of operation, by itself, is not new. It appeared earlier when the material basis for accomplishing it did not exist. Assisting its realization now are the appearance of new means of conducting reconnaissance, smart weapons which can hit small mobile targets at long ranges, reconnaissance-strike systems which can conduct reconnaissance and practically simultaneously strike observed targets, automatic guidance systems, the growing mobility and maneuverability of forces, the development of army and tactical aviation and equipping it with smart weapons.

The essence of this concept, in the view of the American military, is the devastation of the enemy throughout the full depth of the operational structure of his forces by inflicting the maximum damage on him with all available means and by increasing the maneuver capabilities of land forces. They propose to conduct combat operations which encompass the full depth of the enemy formation and inflict strikes on second echelons and advancing reserves. Thus, they propose to employ maneuver of forces and resources broadly, both on the land and in the air. It is stated that a peculiarity of this concept is an understanding of "expanded battle," meaning that each tactical entity must expand the parameters of its combat activities in time and space, relative to accomplishing maneuver, fire support and reconnaissance to the full depth of enemy formations in order to paralyze his conduct of battle on the front line.

The American military press reports that the basic component of "air-land battle" is "DEEP ATTACK" of the enemy, comprising a component part of the unified plan for combat. In any type of operation (offensive or defensive), it is expected to be the means of conducting coordinated actions of army and tactical aviation with the forces and resources of large ground formations, formations and units, to destroy, delay and disorganize enemy second echelons and reserves. The goal of such actions will be to weaken opposing forces, disrupt massing of forces and achieve essential superiority and, in the final result, crush the enemy. It is believed that this will be achieved by splitting and disorganizing the enemy's combat organization, covering the maneuver of friendly forces, reducing the effectiveness of fire support and command and control systems, and achieving deep isolation of areas of combat by separating them or preventing the arrival of his second echelons and reserves.

"Deep attack" is founded on thorough reconnaissance preparation of the battlefield and timely receipt of information from staffs and higher units. But the main instruments for its accomplishment are tactical and army aviation, field artillery, reconnaissance-strike systems, air-mobile and airborne forces and special forces.

It is believed that with a limited number of forces earmarked to conducting "deep attack," one will not always succeed in destroying the second (follow-on) enemy echelons. However, it may fully delay, disorganize and divert part of his forces by attacking them or by blocking key terrain.

The American manual reveals that "deep attack" counters enemy advantages, limiting his flexibility, disrupting his plans and restricting initiative. It is, therefore, possible to prevent the arrival of enemy follow-on echelons or seal them off from the field of battle, forcing the enemy to employ his forces in unfavorable conditions. By carrying out "deep attack," it is also possible to disrupt the opposing force's command system by attacking command posts and communications centers at decisive moments in the battle or by eliminating critical nodes.

In accordance with the "air-land battle" concept, the region of impending action (for more precise allocation of forces for the conduct to "deep attack") is divided into two inter-connected zones--combat influence and potential danger. They are secured by designated units, formations or large formations.

The first zone is a belt stretching from the line of contact forward into enemy territory. In this belt, reconnaissance is conducted as well as immediate destruction of enemy forces of the corresponding organizational order (brigades conduct reconnaissance and destroy units with their forces: divisions--first echelon divisions, corps--first echelon large formations, etc.). The depth of these zones may be: for brigades--15 km, divisions--up to 70 km, corps--150 km, and echelons above corps--300 km.

The zone of potential danger is the belt beyond the combat zone where enemy follow-on echelons and reserves are located which could influence subsequent combat activities of the corresponding command level (for brigades--enemy second echelon units, divisions--second echelon formations, corps--large formations, etc.). The depth of these zones may be: for brigades--about 50 km, divisions--80 km, corps--150 km, and echelons above corps--more than 300 km. It is noted that a lower command's zone of potential danger is located within the higher [command's] zone of combat influence. The general depth of the belt of a responsible formation (large formation) may amount to: for brigades--up to 70 km, divisions--up to 150 km, corps--up to 300 km. The depth for echelons above corps will be significant.

The army leadership believes that zonal control may turn out to be the basis for issuing orders in the offense. Thus, judging by foreign press reports, crushing the enemy in the zone of combat influence will be, possibly, the immediate objective of a formation (large formation) and in the zone of potential danger, a succeeding objective. These controls presumably will be developed in the field as the transition to a new organizational structure and the arrival of modern equipment occur.

According to the proposition of the American manuals, "deep attack," depending on the developed combat situation and missions being accomplished, should be accomplished by the following four fundamental methods.

THE FIRST includes destruction (neutralization) of the enemy second echelon, principally by air strikes, reconnaissance-strike systems, and artillery. Additionally, with the goal of isolating the battle area and preventing reinforcement of the enemy first echelon, which is conducting the main battle,

measures to delude the enemy and carry out active electronic warfare are planned.

THE SECOND envisions fires by reconnaissance-strike systems and combined (fixed- and rotary-wing) air assault groups on those units of the second echelon which, according to the situation, could oppose forces conducting maneuvers on the flank or in the rear of leading combat units and formation of the enemy first echelon with the goal of completing their destruction.

THE THIRD assumes simultaneous attacks on the second and first enemy echelons. It is believed that this method is more complicated than the first two since it demands close coordination of simultaneous employment of forces, of controlling the main battle, of air-mobile forces, of artillery fire, of electronic warfare and of army and tactical aviation.

THE FOURTH has the goal of eliminating or neutralizing a potential enemy threat by attacking fire support resources, nuclear weapon targets, aircraft on airfields, etc. in his rear. Fire support and aviation are envisioned for this.

American military specialists believe that selection of one or another method of "deep attack" will depend on the mission and availability of forces and means for execution so that attacks are made on those forces and targets whose destruction or neutralization will ensure the success of the operation. By their calculations, conduct of "deep attack" will make it possible to hinder enemy plans to reinforce the first echelon to change the correlation of forces in his favor and to complete crushing the first echelon, thereby disrupting the enemy concept of the battle.

As the Western press shows, the fundamental existing and developmental means for "deep attack" are reconnaissance-strike systems, army and tactical air, air-launched cruise missiles, ballistic missiles of operational and tactical employment, multiple-launch rocket systems, field artillery pieces and mortars, assault helicopters, and remote mining systems.

The primary targets designated for attack are considered to be command posts and communication centers, nuclear missiles, concentrated forces and moving forces (most of all armored), airbases (airfields), communication nodes, air defense positions, material-technical objectives and so forth. It is planned that radio-electronic suppression will take place at the same time.

"Deep attack" by corps assets and supporting units is planned to begin with the appearance of the enemy at a distance from the line of contact of 150 km. In the initial stages of the war, it may be conducted suddenly throughout the depth of the enemy formation. Under its cover, forces can move forward and deploy for the attack or for occupation of defensive positions on the forward edge of the battle area (FEBA).

It is believed that nuclear fires are the most effective when advancing enemy forces are located at a substantial distance from the FEBA (about 100-120 km). At these distances, in the opinion of American experts, maximum enemy vulnerability and the safety of own forces are obtained while the necessary

amount of time is gained for organizing combat activities to defeat enemy first echelons.

Chemical weapons are considered an important element for conducting "deep attack." The goal of chemical weapon utilization is to reduce substantially the enemy's combat effectiveness by attacking his first echelon as well as delaying and disorganizing the second echelon and reserves.

The army command thinks that the number of long-range weapons will always be relatively insufficient and the number of targets large. Therefore, it is proper (that is, realistic) to identify the "deep strike" targets and select only those whose destruction will bring about a significant reduction in enemy combat potential and assure successful accomplishment of the mission. It is emphasized that, as opposed to normal employment of fires against the enemy, "deep attack" employs a coordinated operation by all available weapons on his force grouping. Such an attack is expected to be conducted suddenly, massively and in a goal-directed manner.

These are, in the opinion of American experts, the basic principles of the plan to accomplish "deep attack" in current operations. The foreign military press has reported that, following adoption of the new air-land battle concept in the USA, NATO's military leadership demonstrated interest in it, especially in the part concerning "deep attack," and they adopted its principles.

As emphasized in the Western press, as early as March 1981, General Rogers, the Supreme Allied Commander of NATO forces, charged his staff to develop an operational concept for employment of armed forces at the initiation of war, based on "forward defense" and "deep strike" and in consideration of the strategic situation, especially in the Central European TVD. It was set forth in a statement by Rogers and received the title "Combat with Enemy Second Echelons (Reserves)," or, the "Rogers Plan."

As the foreign press reports, a main element of military strategy is considered to be the concept of front lines. This, in the opinion of bloc military specialists, does not satisfy the NATO command which considers it too "defensive." In NATO's opinion, it is essential to have a more "offensive" concept, which encompasses, in the initial stages of a war, transferring combat operations to Warsaw Pact territory. It is believed that the concept of "front lines" can be effective only in conjunction with "deep strikes" against the enemy.

The essence of the "Rogers Plan" lies in attacking second echelon forces of the Warsaw Pact at the very beginning of military activities and to prevent their arrival in the battle zone. "The goal of attacking enemy second echelon forces," Rogers declared, "is to prevent or limit their participation in the combat actions at the front line. This may be achieved by destruction of the designated forces and disorganizing or halting their forward movement." Rogers asserts that the attacks must be made, not just against troops, but also on objectives deep in enemy territory (air bases, command posts, bridges, supply dumps, etc.) whose destruction or damage could ensure the success of the operation.

For the achievement of this goal, the NATO general is demanding the development of plans for coordinating the branches of the armed forces and utilizing Western technological advances to develop weapon systems and items of combat equipment necessary for making these attacks throughout the entire depth of the enemy's formation. He also demands the creation of a new means of target detection; target designation and data processing, operating in real time, as well as survivable and fast-acting systems for command and control which can ensure timely transmission of reconnaissance data and orders to launch weapons against the enemy; and the development of conventional weapon systems with which accurate and powerful strikes on targets can be made at significant depths beyond the FEBA.

The Supreme Commander of Allied Forces NATO asserts that part of the indicated increased forces and resources for practical accomplishment of the new concept is already present in the bloc, but part is in development (planned for implementation in the next two or three years). There are: a system for long-range radar target location and guidance--AWACS, the PLSS location-strike system and "assault breaker," airplanes with munitions cassettes, ballistic missiles with improved warheads, rocket barrage systems, artillery rounds with terminal guidance, and others. He proposes a concrete plan to accomplish "deep attack," recommending early development of plans for attacks by missiles and conventional rounds against stationary targets (bridges, rail yards, electric power plants, etc.). After the enemy advance slows as a result of these attacks, other means may be employed including aircraft, and, depending on the degree of advance of the enemy to the battle zone--MLRS and artillery.

Thus, such new American opinions on the conduct of combat as the "Rogers Plan," have a clearly offensive character, envisioning, in essence, sudden attacks against the Warsaw Pact countries. All of this obliges Soviet soldiers, together with the soldiers of the fraternal countries of the socialist alliance, to maintain their vigilance and to be constantly combat ready to repel aggression.

1. For more detail on this concept, see: "Zarubezhnoye voyennoye obozreniye," No. 7, 1984, pp. 29-35. Ed.

COPYRIGHT: "Zarubezhnoye voyennoye obozreniye", 1984

9355

CSO: 1801/142

## FOREIGN MILITARY AFFAIRS

### USE OF NIGHT-VISION DEVICES DISCUSSED

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 12, Dec 84 (Signed to press 10 Dec 84) pp 40-44

[Article by LtCol A. Litvinenko, candidate of technical sciences and LtCol A. Miroshnikov; "Employing Technical Means of Insuring Right Combat Operations."]

[Text] Foreign military specialists regard the conduct of night military operations as an important means of improving the effectiveness of offensive and defensive operations. These views are reflected in NATO ground forces field regulations. In them, in particular, it is noted that night combat operations in an offensive are conducted in order to achieve surprise, develop success, maintain the offensive's tempo, and for breaching strongly-fortified enemy defenses.

As foreign experts believe, the enumerated missions can be fulfilled only by correct planning and the efficient organization of technical resources for ensuring night combat operations. Apropos of this, in an article by R. Ott, published in the American journal INFANTRY, it is pointed out that, "Control of the night engagement will depend primarily upon the correct utilization of equipment rather than on the tactical principles in books."

In foreign specialists' opinion, it is advisable to carry out combat operations during darkness, without terrain illumination: for the achievement of surprise; when there is a sufficient number of the various night vision devices and similar enemy devices can be suppressed; if there are no obstacles in the combat zone which must be illuminated; and also in those cases when units and subunits have been specially trained.

The following technical resources are used in foreign armies for maintaining the above-enumerated conditions for control over the battle field, for searching for and hitting targets while conducting night combat operations: PNV (pribory nochnogo videniya = night vision devices), RLS (radiolokatsionnye stantsii nazemnoy razbedka = ground reconnaissance radars), and NNS (nazemnye navigatsionnye sistemy = land navigation systems). Night vision devices have received the widest distribution in capitalist countries' ground forces. They are installed on tanks, infantry fighting vehicles, armored personnel carriers, anti-tank missile systems, and infantry weapons or are used in portable versions and serve to detect targets, ensuring effective fire on

them, and to operate combat vehicles at night. The first PNVs were the so-called active type, since, for their operation, the target had to be illuminated by an infrared (IR) searchlight.

At the present time, the main type of night vision devices being used are passive and IR imagers. Passive (without illumination) PNVs are modeled after EOP (elektro-opticheskie preobrazovateli = image converter tubes), and ensure a high degree of operational secrecy as compared with that of active [devices]. Under favorable conditions this will allow success to be achieved. They give combat vehicle crews the capability of directing fire on a bright night at a range of up to 1,200 m., and on dark nights up to 500 m. If, during a battle, fires arise or means of illumination are used, then the effectiveness of passive PNVs increases.

However, as foreign specialists see it, these devices have a number of significant shortcomings which limit their use. In particular, they work well only under sufficiently high light levels (0.05 lux and higher). On a dark night or in fog, it is practically impossible to conduct reconnaissance by using such devices. Using a PNV to observe darker portions of the terrain from areas with greater illumination (for example, monitoring the situation in a forest from open terrain) is also ineffective. Target images in such devices' field of view do not have sufficient sharpness and contrast; therefore, high crew qualifications are required to identify camouflaged tanks and combat vehicles. NATO military experts are increasingly of the opinion that, without a lighted battle field, passive PNVs will be inadequate for use during combat in terrain characteristic of European countries. They can be helpful only in an open, for example desert, terrain in clear dry weather.

Foreign specialists note that PNVs must be kept in the passive mode as long as possible. The shift to the active mode is advisable if the level of natural illumination is low, when the enemy has detected offensive or defensive forces or he has been approached to the distance most suitable for opening fire. Thus, in order to hamper the enemy in the detection of the main forces of the detachment, it is recommended that the IR projectors be turned on, to the extent possible, only on the flanks and for the short time (10-15 sec.) necessary to fire at the target. It is not recommended to use PNVs in the active mode for reconnaissance since IR projectors can be detected by the enemy at great distances.

During a tank platoon's concentrated fire on a detected target, one or two tanks, positioned on the flanks, turn on their IR projectors and the remainder fire at it [the target] (Fig 2). When two tanks are firing, one

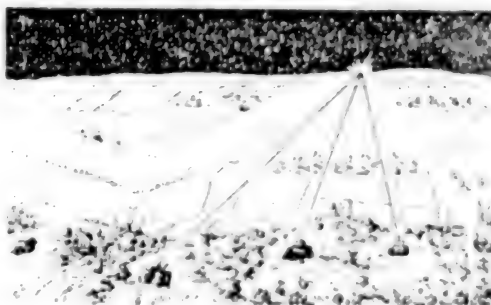


Figure 2. Schematic Presentation of Target Illumination Using IR Projectors.

illuminates the target with an IR projector, and the other conducts the firing. After 10-15 seconds (immediately after a salvo has been fired), they change roles. In a night fire fight with superior enemy forces, each tank will, as a rule, illuminate the target and fire at it independently.

The major deficiency of the active-mode PNV, in foreign specialists' opinion, is the device's short operating range. It considerably reduces the capability of tank and especially of anti-tank guided weapons. Besides that, IR projectors disclose forces' position and illuminate only small portions of the terrain. This hinders fixing one's position [vis-a-vis the terrain] detecting targets and controlling subunits. It is noted also that the screens of the image converter tubes for active-mode devices are subject to exposure both by muzzle flash and by enemy illumination equipment, and their operational range falls sharply in a smoky or dusty atmosphere.

All the enumerated deficiencies, in the foreign experts' opinion, limit the use of active PNVs in the basic types of battle. Several foreign specialists, for example, R. Nemet, author of the article "Mechanized Troops' Night Military Operations," published in the Austrian journal TRUPPENDIENST, believe that, in a night offensive operation, it is necessary to use passive PNVs, infrared imagers or illuminating projectiles, mines, mortars and missiles, but it is necessary to abandon the use of the active mode. In defense, illumination of the battle field using the indicated equipment is also preferable to using an IR projector, especially if enemy troops are equipped with infrared imagers.

The deficiencies of EOP-Type PNVs, especially their short operating range, have led to the fact that, in recent years, much attention has begun to be paid abroad to the development of TPNV (teplovizionnyye pribory nochnogo videniya = IR night vision devices) which illuminate and identify targets using the targets' own thermal radiation. The merits of TPNVs usually include the following: they work independently of the natural light level; concealment of operation; extensive target detection range (up to 3,500 m), which makes it possible to deliver fire on targets at maximum tank cannon fire and anti-tank guided missile effective ranges; the absence of the blinding effect of muzzle flash and enemy illuminating equipment; the capability to detect targets covered with vegetation and camouflage nets; an insignificant reduction in target detection range when smoke screens are used and dusty atmospheric conditions prevail; and the possibility of transmitting images over communication channels.

In the immediate future, as the foreign specialists see it, IR imaging equipment will be used ever more widely by troops and will take the place of PNVs in a number of cases. At the same time, present day TPNVs are complicated and expensive to make and have, by comparison, low resolution capability (which hampers detection of small targets), require cooling of the radiation receiver by low-temperature refrigerants and are ineffective in rain, snowfall, fog, etc. Additionally, they are not very effective at monitoring the background situation (the surrounding territory). This excludes the possibility of using them for orientation on the battle field. The cited TPNV deficiencies led to the necessity of combining them with PNVs, the operation of which is based on the intensification of reflected light. At the

present time, abroad, they believe that the employment of TPNVs for reconnaissance and identification in the basic types of battles is effective only at significant ranges (more than 1,000 m). At short distances and for orientation in terrain under favorable conditions, it is more feasible to use the simpler and less expensive PNV, which gives an image of a higher quality.

In foreign specialists' opinion, the task of effective search for, and destruction of targets in a night engagement usually is solved by using the devices mentioned above in a coordinated manner. However, they turn out to be unfit for night operations in bad weather (in rain, fog or snowfall). Under these conditions, battle field target reconnaissance can be carried out by radar.

The capitalist countries' ground forces are armed with a significant number of various radars for ground reconnaissance, which expand the capabilities of subunits and units for detecting targets in a night engagement. This is explained primarily by the radar effectiveness in bad weather and by its ability to "sweep" extensive portions of the terrain in a short time and, when moving targets are spotted, to indicate their coordinates quickly and quite accurately. But, employing radar for ground reconnaissance in a night engagement, in the opinion of foreign specialists, is advisable only in extreme cases, when PNV effectiveness is low. This opinion is based on the fact that the operation of this type of radars sharply reduces the ability of one's own forces to conduct night engagements with due regard for concealment measures, because the radar is easily detected at distances significantly in excess of its operating range. Therefore, to improve the level of concealment, some foreign specialists recommend the short-term use of radar and only on the flanks of offensive or defensive forces. The difficulty of target identification, the low capability for detecting stationary targets and the susceptibility to the effects of enemy electronic warfare equipment are still other deficiencies of ground reconnaissance radars.

The equipment examined above, as noted in the foreign media, can be employed both on the offensive and while conducting defensive night combat operations without illuminating the terrain. At the same time, they do not provide reliable orientation of units and subunits while underway in march formation, particularly in unfamiliar terrain.

In the capitalist countries' armies, various navigation systems, by which vehicle coordinates and the direction of their movement are determined are widely used along with PNVs for terrain orientation. The way foreign specialists see it, night navigation systems (NNS) must be integral equipment for orientation in an area and must be in each unit, down to the individual tank and combat vehicle.

Intensive development of night vision devices; IR imagers; ground reconnaissance radar; navigation systems; and the equipping of foreign armies with them on an extensive basis, have increased the ability of forces to redeploy and launch a surprise night engagement without compromising their concealment measures. However, they [these devices] have not been able to fully replace battle field illumination equipment. The West German specialist in the field of night combat operations, H. Layfke, in an article published in

the journal KAMPFTRUPPEN, assesses the prospects for night use of various equipments as follows: "...in no case, should one overestimate the significance of night vision devices. The main mass of weapons can be employed only by lighting targets with illuminating and pyrotechnic resources. If one side is equipped with night vision equipment, only then will it be put in an advantageous position."

The majority of foreign specialists share this opinion. Therefore, in the NATO bloc countries' forces, as before, there is a significant quantity of illuminating equipment which can be divided into two groups: pyrotechnic (Illuminating bombs, mines, shells, mortars, and missiles) and projectors. Their employment on the battle field, in foreign experts' opinion, has the following features. First, as noted in the American Field Manual FM100-5, they must be used in the absence of a sufficient number of night vision devices, when the natural illumination level is low, or when employing PNVs will give an advantage to the enemy. Secondly, illuminating resources in certain situations lower, and sometimes even exclude, the possibility of detection by night vision devices modeled after EOPs. Additionally, the shift from PNV to observation in visible band of the light spectrum and, vice versa is associated with a certain loss of time for changing modes. This usually leads to a reduction in night engagement effectiveness. Thirdly, illuminating resources can be used for suppressing enemy weapon systems which are equipped with IR night vision devices. And finally, it is not always possible to guarantee the quality of battle field illumination by the means noted above.

The last consideration refers mainly to pyrotechnic means. Actually, their effectiveness depends, to a large extent, on weather conditions and the correct organization for their employment. Illuminating resources, as pointed out in a number of foreign authors' works, can provide the best conditions for conducting an engagement, not to own forces, but to the enemy (for example, as a result of a shift in wind direction). Besides that, their costliness and the difficulty of setting them up in a position for delivering the necessary level of illumination, are considered deficiencies of pyrotechnic resources. In this connection, in the NATO armies, they are regarded only as a supplement to other support systems for conducting a night engagement.

Pyrotechnic resources can simultaneously illuminate a large portion of the terrain and disclose own forces to a lesser degree than projectors. It is believed that their use in the basic types of engagements must be carefully planned. During preparations for a night offensive, designation of targets and boundaries for illumination by pyrotechnic resources are laid out, in so far as possible, in the daytime. During the engagement, illumination must contribute, on the one hand, to forces' orientation and, on the other, to the search for, detection and striking of targets. It is necessary to organize it in such a way that artillery, tanks and anti-tank guided missiles can hit advancing enemy tanks and motorized infantry when they are a significant distance from the forward defense line.

In general, foreign specialists evaluate the effectiveness of pyrotechnic illumination resources during the conduct of night combat operations as quite high. Their development abroad is, at the present time, receiving definite

attention. In the FRG, for example, the DT-36 illumination missile has been developed. It burns for 22 seconds at an altitude of 120-130 m. The Swedish firm of Bofors built the LIRAN illumination system, reminiscent in design of a simplified mortar. It is made in a portable version or is mounted on a tank. It fires a 71-mm illuminating mine to distances of 400, 800 and 1,300 m (it is fitted with a detonator). The illuminating mine, while descending, by parachute, from a height of 160 m, at a rate of 3 m/sec, burns for 25 sec and illuminates a circle approximately 500 m in diameter.

It is suggested that projectors be used, for the most part, for short ranges and, in most cases, when pyrotechnic resources are inadequate for lighting the battle field well. At the same time, they can serve both for direct illumination of terrain and targets and for creating the requisite level of illumination while using passive PNVs. Foreign specialists believe one of the advantages of projectors is that, with them, a commander can better control subunits. If night vision devices are used, it is difficult for him to determine which targets his subordinates have selected and where their efforts are being directed. But, by illuminating the terrain with projectors, he can evaluate subordinates' actions quite quickly and more effectively control them during the engagement.

In all basic types of night combat operations, terrain illumination by projectors will be carried out by special illuminating detachments, selected in the majority of cases, from combat unit and subunit personnel. For example, in a tank battalion, those tanks which are not participating in the fire fight, will be used for this purpose. Unified control of illumination, fire, and movement is considered the crucial condition for success.

As noted in the foreign media, in an offensive, if the attack is carried out by dismounted rifle subunits, the combat vehicles' projectors provide terrain illumination at the moment of attack or prior to it. It must illuminate on command, whereupon the combat vehicles can illuminate the terrain either from a single position or from alternating positions in sequence. In foreign specialists' opinion, it is advisable to place the combat vehicles with projectors on the flanks of the attacking subunit. In case of conducting the attack without special projectors (the infantry remaining in the armored vehicles), it is better to use the projectors only in the final stage of the attack, when the night vision devices will not give advantage to the attacking forces. In either scenario, the projectors, should be switched on in groups, for example, two at a time, in succession for about 30 sec. It is necessary to decide the shifts in position of the illuminating resources ahead of time. Own attacking forces must not come within the projectors' light. In a number of cases, they can be switched on for blinding the enemy in order to make it difficult for him to repel the attack.

Limited uses for projectors are also foreseen in the defense. Plans call for switching them on to disorient or blind attacking forces; improve firing systems' effectiveness; and to provide illumination for counterattacks. In any case, battle field illumination requires thorough preparation and coordination with troop movements. Projectors must be switched on intermittently with a continuous shift of positions, preferably on the subunits' flanks.

NATO specialists believe that it is possible to secure success in a night engagement only under conditions of coordinated and skillful employment of those resources by units and subunit commanders and also through a high level of tactical and psychological preparation of troops.

COPYRIGHT "Zarubezhnoye voyennoye obozreniye," 1984.

9355

CSO: 1801/142

FOREIGN MILITARY AFFAIRS

HELICOPTERS' COMBAT ROLE DISCUSSED

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 12, Dec 84 (Signed to press 10 Dec 84) pp 49-54

[Article by Lt Col V. Volin; "Helicopter combat"]

[Text] In studying the experience of the aggressive wars in Southeast Asia and the Middle East, begun by the American imperialists and Israeli Zionists, Western military experts came to the conclusion that helicopters would be widely used in combat in a future war. The military leadership of the NATO countries, especially the U.S., making great militaristic preparations, have devoted a lot of attention in recent years to the development of helicopters and the solution to problems related to their use in combat. With this, helicopter units and subunits have been given responsibility for executing various combat missions, in particular, direct air support of ground forces, escort and deploying of paratroops, transport of troops and combat equipment, fighting tanks and other armored targets, and for air reconnaissance and patrol.

Assuming that the opposing side would also make wide use of helicopters for similar purposes, foreign military experts came to a conclusion on the necessity of fighting enemy helicopters in the air. Key to this was the proposal to include tactical aviation units--low-flying attack aircraft and fighters. However, tests and studies have shown aircraft operations against helicopters to be insufficiently ineffective. The main reasons are the complexity of locating and attacking slow-moving targets, flying quite near the ground, as well as the impossibility of such operations in bad weather since the meteorological minimum of modern combat aircraft is greater than that for helicopters.

As a result, NATO forces have affirmed the "helicopter vs helicopter concept," which places on the helicopter one more important mission--fighting enemy helicopters. For this, initial plans called for the inclusion of all types of military helicopters. Later, the preference was for equipment specifically modernized for this purpose. In particular, the U.S. Department of the Army decided to equip OH-58C and D KIOWA and OH-6 reconnaissance helicopters (more than 600 units) for air combat with enemy helicopters. It is proposed that the former be equipped with STINGER heat-seeking guided missiles (at present they are used by ground forces as mobile air defense missile units) and the

latter, besides the STINGER guided missile, are expected to be equipped with 30-mm cannon with 250-300 rounds under the fuselage. To compensate for the helicopter's angle of climb, in flight, the cannon barrel rotates up to 15° without a shift in azimuth (aiming in azimuth will be carried out only by turning the helicopter).

At the same time, the Pentagon supposedly declined to equip the new AH-64A APACHE anti-tank helicopter with air-to-air guided missiles and decided to use them only against tanks. However, both the new anti-tank helicopters (AH-64A) and the long-used AH-1 HUEYCOBRA have been supplemented with 30-mm cannons, giving them armored air combat capabilities.

In the more-distant future, the U.S. military leadership plans to have a special light fighter helicopter for air combat against enemy helicopters. In the opinion of American specialists, it must be made of composite materials and differ from present combat helicopters in its greater speed, better maneuverability and effectiveness of its onboard weapons in operations against air targets.

Simultaneously with the reequipping of present helicopters and the design of new ones, the U.S. and other countries of the aggressive NATO bloc, devote great attention to the development and testing of the fundamentals of tactics of their use in combat during the flight tests and exercises.

In other countries, air battles are classified by range of fire (missile launch), number of participants, and type (character).

Depending on the characteristics of the weapons mounted on the aircraft and the possibility of visual or "instrument" (by technical means) detection and tracking of an enemy, battles are classified by firing (launch) ranges into long, medium and short (close maneuver). Western specialists believe that in a future war, helicopters will engage mainly in close maneuver combat, since in the majority of cases, they will be in visual contact. Therefore, their main weapon must be short-range missiles and cannons (machineguns).

Air battles are classified by the number of participants as group or single. The former break up at a certain stage into singular. Because of this, practice for single battles is the main focus of NATO military aviation in helicopter pilot training for air combat.

The choice of battle type--offensive or defensive--depends on the crew's mission, the character of enemy actions and other aspects of the situation.

If a crew, after detecting an air target first, does not succeed in approaching undetected and attacking with surprise (the enemy discovers the attacker before he comes within effective firing range), it becomes maneuver combat since the most reliable means of defense is an energetic maneuver to reach a safe zone and occupy an advantageous position for attack.

It is known that fighters in the First and Second World Wars engaged in close maneuver battles as well as those in the so-called local wars of the 1950-70s. Therefore, in the West, the experience with fighters is widely used in the

development of helicopter battle tactics. In particular, they borrowed from fighters the basic principle and types of combat maneuvers of both single and group battle.

According to foreign press reports, NATO helicopter crew air combat training begins with offensive and defensive combat maneuvers, at first singly, then in pairs. To this day, helicopter crews study close air combat using small arms and cannon weapons because the installation of air-to-air guided missiles on helicopters has been put off to a later date.

In the opinion of foreign specialists, "cannon" battle will return the pilot to the fighter tactics of the Second World War and compel him to know the principles formulated on past experience. The basic one relates to the desire for an advantage in altitude and speed as well as to the attainment of a specific position in space relative to an enemy helicopter--to enter an area of possible attack in the rear hemisphere with limited boundaries which are determined by the range and target aspect of effective fire.

The Western press emphasizes that the pilot (crew) with the initial tactical advantage has the task of directing the helicopter into a possible attack zone in order to use its weapons. The defender must execute a maneuver in order to prevent this and, as a corollary to that, to go to the attack or successfully break off the battle. Both the attacker and defender maneuver horizontally and vertically.

As shown in past battles, the number of standard maneuvers is not infinite and comprises about two dozen. Therefore, every action must be worked out by the crew until it is automatic so that in a "standard" situation, pilots could execute them without thinking. That is, the mission is to develop reflexive responses to the enemy's actions. For anti-tank helicopter crews, the most usual is the defensive air battle, and for the lighter (attack) ones--offensive.

From evidence in the foreign press, for the defender in a battle, rules have been worked out, chief among them being the turn, not "from" but "toward" the enemy, in order to more quickly take the latter out of the zone of possible attack on one's own helicopter. Thus, if the enemy is at a distance exceeding the sum of the turning radii of the helicopters, then it is vital to complete a set turn (without losing speed). When the distance is less, the pilot must execute a power turn while losing speed ("braking"). With this, the helicopter's energy level drops and might not be sufficient for subsequent active actions. However, to increase the angular velocity in a critical situation, requiring the enemy's very rapid departure from an area of possible attack and to escape fire, a power turn would be most effective. The foreign military press has illustrated several helicopter combat techniques which were developed by pilots during special programs and tactical exercises. Special attention was paid to combat between different types of helicopters (for example, heavy helicopters and light maneuverable ones where each side uses the tactics best suited to its needs).

As an example, Fig. 1 (left) shows the "hill" offensive maneuver, which for fighters, is referred to as "high speed." It is executed by the attacking

helicopter while approaching at great speed. In order to preserve the opportunity to enter and remain in the attack zone and not "jump past" an enemy who has executed a defensive turn, the attacker cuts his speed while gaining altitude (first half of the maneuver). This allows for not only keeping the enemy in front, but also for executing a tighter turn towards him (with a shorter radius). Being behind/above the target, the pilot closes (second part of the maneuver) by picking up speed while descending and enters into the firing range.



Figure 1. "HIGH SPEED" Offensive Maneuver or "Vertical Climb."

- LEFT:
1. Attacking helo approaches target at high speed.
  2. Defending helo which began evasive maneuver late.
  3. Gaining altitude.
  4. Turn to the target with a large change in direction for approach to the area of possible attack.

- RIGHT:
1. Defending helo (it has used a "braking" maneuver).
  2. Attacking helo making a power turn.
  3. "Vertical climb" with a turn.
  4. Reversal of direction.
  5. Diving attack.

It is noted that if the defender were to discover early on a rapidly approaching enemy and utilize "braking" to let him pass above in order to go on the attack against him, the attacker executes a "hill" (Fig. 1, right). There, he attempts to keep the enemy in sight by keeping the helicopter almost on the other's tail, and then execute a turn and attack the target while descending from the outer portion of the turn. The second half of the maneuver utilizes the light helicopter's maneuvering advantage to produce a lead angle necessary for cannon fire.

When the attacking helicopter follows the enemy along a curve without a speed advantage (it cannot quickly achieve firing distance), the "move to point of prediction" technique [attaining the proper lead angle] is executed (for

fighters it is called "low speed"). The pilot swings the helicopter around to the proper lead angle and descends while gaining speed. After approaching the target, he begins to gain altitude and occupy the position appropriate for a rear hemisphere attack (Fig. 2 left).



Figure 2. "LOW SPEED" Offensive Maneuver while Attacking in a Turn.

- LEFT:
1. Attacking helo.
  2. Defending helo.
  3. Beginning of dive.
  4. Leveling off and shift to increase altitude.
  5. Approach and attack.

- RIGHT: Defensive Maneuver During an Attack in a Turn.
1. Attacking helo.
  2. Defending helo began rapid power turn (reversal of direction).
  3. Continuation of dive with a turn.
  4. Attacking approach

At the first sign that the attacking helicopter is turning to take a lead angle, the defender executes a power turn with a dive to face the enemy helicopter (Fig. 2, right). Another defensive move (if speed is sufficient) is a steep climb and a move to the "hill" to go on the attack.

If the convergence is head-on, Western specialists figure that the enemy might be attacked after a half roll (Fig. 3). In order to do that, the pilot accelerates and while coming up on the target begins to climb rapidly ( $25^{\circ}$ - $30^{\circ}$  pitch angle) attempting to enter the blind spot above the enemy helicopter's blades where he cannot use his weapons. Having made the necessary climb, the attacking helicopter's pilot executes a turn (half turn) designed to place him in the enemy's rear hemisphere on a following course. Then he picks up speed and attacks the target.



Figure 3. Attack with Wingover (Half Roll).

1. Attacking helo begins acceleration.
2. Gaining altitude.
3. Attack with wingover (half roll).
4. Attack with wingover with move to after hemisphere.
5. Defending helo.

To defend against a helicopter executing the above-mentioned maneuver, one must gain altitude and simultaneously turn to the enemy's side at the moment he just begins his attack run. As a rule, this leads to a situation in which both helicopters begin an ascending circle, while attempting to gain a position in the other's rear hemisphere. The air battle is won by the one who manages to maintain an advantage in speed.

One of the most widespread initial positions is the following: the enemies are at a distance and observe each other. In this situation they most often use the "scissors" maneuver ("horizontal scissors, Fig. 4, left). Following the "turn around enemy" rule, the helicopters converge then diverge, trying to get to the other's rear hemisphere after each pass. In such an instance, a light helicopter has an advantage over a heavier one since it maneuvers with a smaller turning radius, loses power slower and better maintains altitude thanks to which he can more quickly assume a position suitable for firing.



Figure 4. LEFT: "Horizontal Scissors" Maneuver.

1. Attacking helo.
2. Defending helo.
3. Power turn at the enemy.
4. Reversed power turn.
5. Moving to enemy's after hemisphere and attack.

RIGHT: "Sudden Power Braking" Defensive Maneuver.

1. Defending helo begins braking.
2. Attacking helo begins steep climb maneuver.
3. Hovering over the target.
4. Accelerating for the attack, slipping ahead of the enemy or with the target breaking off and if last acceleration was executed in time and down advantageous position was maintained.
5. Dive with turn to the side of the target, i.e., pursuit.

In a critical situation, when the defending helicopter is almost in firing range of a pursuing light helicopter, an escape maneuver to avoid fire is a sharp crossing at a large angle of attack ("sudden power braking"). For his part, the attacker must not allow this, and so executes a "sharp hill" in time to hang above the target and bring the helicopter into a diving turn to the defender's side (Fig. 4, right).

In the opinion of Western military specialists, helicopter battles will usually take place at low or extremely low altitudes, so that descending maneuvers to gain or regain speed are dangerous. They consider high thrust-to-weight ratio (ratio of thrust to weight) one of the most important virtues of a helicopter suited for battle. Surplus thrust permits the pilot to "control the distance" to the enemy, that is, gives him the advantage in approaching or breaking off (when leaving the battle). The one without this advantage will be forced to use braking techniques, utilizing the sluggishness of the enemy's reaction (arising from the great weight of the helicopter or inexperience of the pilot).

Having discovered the enemy in a threatening position on his tail, a pilot lacking the opportunity for a horizontal power turn resorts to braking by turning the helicopter around the transvers axis with a sharp gain in altitude. The enemy who has passed by can be attacked after the pilot accelerates upon descent (Fig. 5, left).

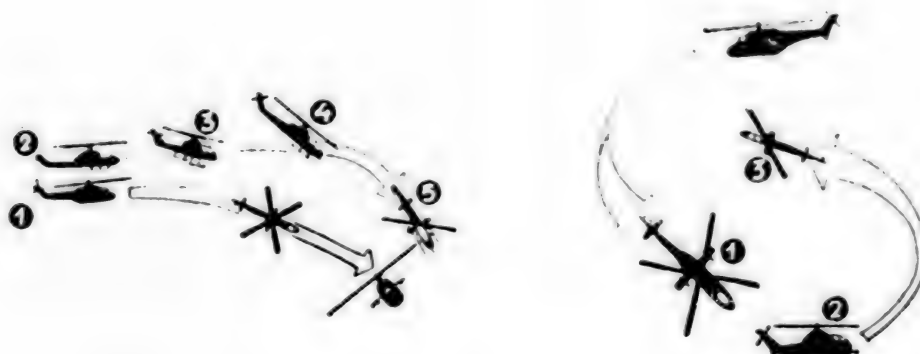


Figure 5. LEFT: "Braking Maneuver."

1. Enemy helo.
2. Enemy detected in a threatening position.
3. Braking by turning the helo around the transverse axis and sharply increasing altitude.
4. Acceleration by diving.
5. Attack.

RIGHT: "Closing the Enemy in a Turn" Maneuver.

1. Enemy helo.
2. Beginning power turn while climbing.
3. Turn at the enemy with subsequent move to attack.

A small excess of thrust (the worst thrust-to-weight ratio) makes necessary the "draw the enemy into a curve" technique. As noted in the foreign press, it is important while "on the carousel" not to permit a situation while, losing speed, where the enemy stops banking in order to take aim by changing the lead angle for cannon fire. In this situation it is recommended that one put his helicopter into a power turn while gaining altitude. The battle will continue in an ascending spiral. The pilot of the lighter more maneuverable helicopter, utilizing the smaller turning radius, can go inside the circle and assume a position for cannon fire; from below or behind at an angle of approach up to  $1/4$  (Fig. 5, right).

In the opinion of foreign military specialists, the support of ground troops in modern war will be assigned to large groups of helicopters which has led to the appearance of group air battles.

If two pairs of helicopters engage in battle and then begin to converge on a meeting course, the attackers maneuver with an eye toward attaining a position wherein their two helicopters oppose one enemy helicopter. The approach to the enemy pair must come from a direction in which the enemy's lead helicopter blocks the other's field of vision. It is necessary to maneuver to the rear hemisphere, but if such a maneuver is impossible, one must attack from the front hemisphere or from another angle of approach.

In a battle involving a pair of helicopters, the division of duties between the lead and subordinate helicopter is of great importance. The Western press notes that the lead crew must follow these principles: attempt constantly to keep the enemy in your field of vision; maintain the initiative and create conditions in which he cannot use his weapons; and exert maximum effort to carry out a successful attack on the first pass.

At such a time, the subordinate must cover the lead [helo] while keeping the enemy in view, present a move to the rear hemisphere of the combat formation and, when necessary, assure the lead [helo's] safe departure from the battle. A rapidly changing combat situation assumes that both crews be ready to swap roles at any moment.

Reviewing the results of exercises and tests, foreign military specialists offer specific conclusions and generalizations to be incorporated into future flight and combat training. It is noted that it is extremely important for crews to know the armaments and flight-tactical characteristics of enemy helicopters, as well as to be able quickly to detect and identify them. Besides that, they must quickly and accurately inform other crews, air defense posts, and command posts about an approaching enemy while remaining undetected themselves.

The foreign press emphasizes that success in air combat depends upon the timeliness of target detection, coordination of the actions of crew members and the crews in the group, upon their ability to hide their maneuver and attain a good attack position, as well as the effective use of onboard weapons.

Military experts in the U.S. and other countries of the aggressive NATO bloc assign an important role to helicopters and believe that greater interest should be shown to helicopter combat tactics, as long as previous problems are being worked out slowly. At present, new instructions and manuals are being developed and the flight instructions reviewed and updated so that theoretical conclusions are proven during various exercises, flight tests and experiments.

COPYRIGHT: "Zarubezhnoye voyennoye obozreniye," 1984

9355

CSO: 1801/142

FOREIGN MILITARY AFFAIRS

AIRFIELD-DAMAGING MUNITIONS DISCUSSED

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 12, Dec 84 (Signed to press 10 Dec 84) pp 55-63

[Article by Col I. Karenin; "Aviation Weapons for Striking Airfields;" passages rendered in all capital letters printed in boldface in source]

[Text] Combat with enemy aviation, according to NATO military experts' official views, ought to be directed primarily at obtaining air superiority by inflicting as many losses as possible on the opposing side's war planes and knocking out their base airfields and control organs. In their opinion, the attainment of air superiority must be given primary attention because the success of the conduct of the overall aerial operation offensive depends, in large measure, upon it. This is why, as the foreign press notes, up to 50 percent of the aviation resources can be dedicated to achieve a given task. It is also considered that one of the effective ways to achieve air superiority is to strike airfields.

The Western press emphasizes that such strikes ought to be carried out during the initial period of the war or even shortly before hostilities commence. It is anticipated that a carefully-planned mass and surprise attack on airfields for basing enemy aviation, can lead to practically complete air superiority in the course of several hours and deprive the enemy of the chance to actively conduct combat operations. In this regard, the Western press presents the operations of the Israeli aviation and its bombing of airfields during the 1967 war, where the Zionist aggressor lashed out against the neighboring Arab states, as a good example of such a preplanned successful operation.

Furthermore, it is considered that inflicting strikes on airfields which, as a rule, now have well organized air defenses, runs the risk of losing a substantial number of planes dedicated to a given mission as well as trained air crews. Hence, several Western military specialists are somewhat cautious in their estimates of the utility of conducting such operations in any future war. They hold that the opposing side's loss of warplanes, as a result of strikes on basing airfields, cannot affect further operations to the extent that one does not have to consider one's own losses in men and material. Opponents of this evaluation stress that, in comparison to aerial combat, striking airfields is a rather flexible way to achieve air superiority but should, no doubt, be used in keeping with whatever circumstances are involved.

In the foreign press, strikes on airfields are classified according to these goals and are intended to achieve: the destruction of planes on the ground or knocking out take-off and landing strips. Until recently, the former was considered the primary task even if they were scattered and camouflaged, since undefended planes constitute an easy target. At the present time, when the majority of modern air bases are equipped with strong aircraft shelters, capable of resisting even a direct attack with large caliber munitions, including even "air-to-ground" guided missiles, the task of destroying planes from the air has become much harder, despite the fact that efforts to create corresponding means of inflicting damage are being undertaken. Now, when airfields are attacked, it is primarily the take-off and landing strips that are knocked out to the point that it will be impossible for planes to take off from them for some time.

In the view of foreign military experts, this approach is more expedient since it is unrealistic to think that everything--planes not excluded--will be destroyed, whereas knocking out the air strips (or some of them), almost completely stops the aviation operations of that airbase. Furthermore, the achievement of this task exposes the attacker to less danger since the weaponry can all be effectively focussed on one target during a minimum timespan within the active ground air defense zone. However, it is emphasized that even the greatest loss inflicted by modern means can be rectified in a very short time, after which the enemy aviation will again be able to resume full use of as airfield which has been attacked from the air. In this light, the opinion has been expressed that the task of winning air superiority may theoretically be considered attained if one can succeed, as a result of inflicting strikes on airfields, in paralyzing the operations of a substantial portion of the enemy's aviation for 1 to 2 days.

Such an outcome, NATO military specialists hold, can be achieved in three basis ways: by bombarding reserve airfields where enemy planes are outside the shelters and are getting ready for a repeat take-off; by coordinating the attack on the main air bases while the [enemy] planes are being towed to take-off positions; and by inflicting strikes on planes at the main air bases.

The first method is considered to be the most preferred and is relatively easy to achieve through the use of bomb cassettes rigged with the sub-caliber concrete penetrating bombs and anti-personnel mines which are to be dispersed in the maintenance area where planes are fueled and loaded with ammunition before take-off. The prospects of a surprise attack on planes being towed to take-off areas are considered quite attractive, since the planes constitute a vulnerable target. However, here it is not the selection of the means of inflicting damage, but the organization of real-time reconnaissance that plays the major role. The Western press notes that such a method was used by Israeli aviation during the events in Lebanon in 1982, where wide use was made of drones to conduct reconnaissance on Syrian airfields located several minutes away from Israeli air bases. In a European environment, it is the opinion of NATO experts, that such a method will require the creation of a significantly more complex intelligence network.

Finally, inflicting strikes directly on planes in shelters is considered possible only under certain conditions, particularly if so-called dual-purpose ammunition is used, which will optimize the outcome of knocking out take-off and landing strips, but can also be used successfully in a direct strike on a shelter. But even in this case, it is assumed that the attacking plane's munitions are best devoted to knocking out a portion of the take-off and landing airstrips rather than destroying one or two planes in shelters.

The approach to selecting a corresponding weapon to strike airfields and the tactics in using it, as noted in the foreign press, differs for the countries which make up the aggressive North Atlantic bloc. With respect to weapons, it is conventionally broken down into two types: those which are ejected from the delivery vehicle as it flies directly over the target (air strip, taxiway, plane shelter, etc.) and those which are released outside the air defense zone. U.S. Air Force specialists consider that the first type is not adequate to ensure the attacking plane's survivability when it strikes an airfield with strong air defenses. Consequently, a major effort has been devoted to developing the means of inflicting damage of the second variety. In several of the European countries, particularly the FRG and Great Britain, it is planned that their air forces will be armed with MW-1 and JP233 bomb cassettes respectively. They, however, are looked upon as intermediate items while, in the meantime, munitions of the second type are being planned. Based on NATO experts' calculations, the arrival of such weapons, which will have a maximum delivery range of about 40 km, will allow one to decrease substantially the contingent of forces and resources devoted to inflicting strikes on enemy airfields.

With respect to tactics, the Western press has expressed the following considerations regarding the use of such a weapon. The first thing to take under consideration is that all major modern air bases will have strong air defenses with anti-air and missile installations to cover an air attack. Secondly, the attacking planes must spend as little time as possible in ground air defense zone but the crew must find it as easy as possible to achieve its objective (the weapon load should be one which can be launched from one point onto the target).

A modern airbase is considered disabled if, after the strike on it, the length of the whole [undamaged] sections of its take-off and landing strips do not exceed 1,000 m (the Western press also has presented the figures 500-600 m) and a width of 15 m. In this case, a take-off and landing strip cannot be used for take-off. This method is considered the most effective since it allows one to attack and air strip crosswise (or at some angle), but not along its length, cutting down on the amount of time exposed to active ground air defenses.

In the final analysis of the results of striking an airfield, according to NATO military specialists, one ought not to judge according to damage inflicted on it, per se, but by the amount of time it is out of action (it is considered desirable, in particular, to keep an air base from functioning at least for several days). Several developers assert that an air strip with hundreds of small-size craters, formed as a result of being struck with sub-caliber cassette munitions, will be harder to restore than a strip with a couple of

large craters. Such a view in particular, is held by the creators of the cassettes MW-1 and JP233. French specialists who developed the DOURANDAL and BAP-100 concrete penetrating bombs consider that a maximum effect is achieved when the destruction of the surface of the air strip is accompanied by a lot of concrete being thrown out of the crater. Furthermore, all around the crater a lot of fissures are formed in the covering so that, before one can get down to the basic job of repairing the damage, one first has to remove a portion of the covering.

On the whole, as mentioned in the foreign press, aviation munitions intended to knock out airfields should be capable of penetrating through the thickness of the air strip covering before it explodes. Only then will it have the maximum effect. It is also considered that one can count on the weapon being used with the delivery vehicle at relatively low altitudes and great speeds. This creates the need to outfit the munitions with various kinds of braking devices or elements to delay its operation in order to allow the carrier to get away at some safe distance. However, in this case, a concrete penetrating munition will not have enough kinetic energy to penetrate the airfield surface. Hence, it is asserted that the required penetrating capacity can be realized either in combined-action munitions (with hollow or mine charge) or outfitting the munition with a rocket accelerator which will impart to it sufficient speed, before it comes into contact with the surface, that it will penetrate the surface covering. The first method has been constructively realized in particular in the West German sub-caliber STABO bomb and the English SG357 bomb. The second method has also been realized in the American BLU-106 bomb and the French DURANDAL and BAP-100 bombs.

In order to do damage to take-off, landing strips and taxiways, one may use special concrete penetrating bombs as well as sub-caliber cassette munitions. Bomb cassettes, according to the assertion of Western experts are, in and of themselves, a flexible way to strike airfields since they are loaded with anti-personnel and anti-vehicular mines in addition to concrete penetrating bombs and their aerial delivery makes the conduct of repair and restoration operation difficult. Several promising munitions which have been developed abroad and are intended to be used to strike airfields are examined below.

IN THE USA, according to reports in the foreign press, until recently, the medium range AGM-109H cruise missile had been advocated as a potential means for striking enemy airfields. It is built on the basis of the TOMAHAWK missile according to the MRASM system by the firm General Dynamics. At the present time, work on this system has been suspended. American specialists have been looking at a variant of the GBU-15 guided bomb equipped with a motorized mount and cassette with a caliber of 2,000 lbs of BLU-106 concrete penetrating bombs. The new guided aviation cassette, which goes under the name AGM-130B, will have a range of 25 km. Development of a guided JTACMS missile is planned (with a range of 250 km) with a cassette warhead, one variant of which is equipped with concrete penetrating BLU-106 bombs that will knock out airfields. They are planned to be used on F-16 FIGHTING FALCON fighter-bombers.

The BLU-106 concrete penetrating bomb (the conventional name for a BKER-- Boosted Kinetic Energy Penetrator) after extensive testing, was selected by

the commanders of the Air Force as one of the most promising means to strike airfields, and, according to an announcement by American arms specialists, may be used both to knock out air strips as well as destroy planes in concrete-reinforced shelters. This munition (with a weight of 19.5 kg and a length of 110.5 cm) has a cylindrical body with a diameter of 10 cm which houses a warhead, a solid fuel rocket accelerator, and an extraction and braking parachute. After the munition shoots out of the cassette, it is stabilized in flight with the help of an expanding tail unit. Then, the parachute system comes into play, braking the projectile and orienting it at an angle of about 65° relative to the earth's surface. Upon attaining a certain height, the parachute fires off and the accelerator goes into action and the bomb speeds up to the point that the tip of the warhead penetrates the concrete covering of the target, and after that, after a small delay, the bursting charge (3 kg) explodes.

The Western press notes that now the United States, in accordance with the "Counter Air 90" program, is studying the issue of possibly using ground-based missiles equipped with cassette warheads (including even ballistic missiles with ranges greater than 300 km) to strike air fields. In the opinion of Pentagon strategists, these weapons, having a time of flight to targets, which the Warsaw Pact military airfields countries are openly considered, of at most a few minutes, can be an effective means of surprise attack. "Research" such as this once again is witness to the aggressive aspirations of the militaristic circles of the USA and NATO.

IN GREAT BRITAIN, a special means for striking airfields is being developed. It is the JP233 bomb cassette, (which is not dropped), filled with two types of sub-munitions: SG357 concrete penetrating bombs [cratering weapon] and the HB876 anti-transport mines [area denial weapon].

The first are designed for destroying concrete runways and the second for hampering repair and restoration work. In its standard version, expected to be suspended under the fuselage of the TORNADO GR.1 fighter-bomber, the cassette holds 30 bombs and 215 mines (weight of the filled cassette is 2,355 kg, length 4.025 m, width 1.14 m and height 0.6 m. Two such cassettes can be hung on an aircraft. Both types of ammunition are dispensed from the cassette simultaneously at preset time intervals at an altitude of about 60 m and a speed of up to 900 km/hr.

After being dropped from the cassette, the SG357 dual-action bomb (weight about 25 kg) descends by parachute and upon meeting the surface, activates the shaped charge which pierces the runway. The high explosive charge, (weight about 2 kg), enters the hole which has been made and explodes with a slight delay. The HB876 mine is capable of destroying both personnel and transport equipment. It is fitted with a self-destruct system with random time settings which can be extended to several hours, during which time, as the English specialists count on, it will be very difficult to perform repair and restoration work on an airfield which is being subjected to air strikes.

IN FRANCE, two specialized devices were created for runway destruction--the DURANDAL and the BAP-100 concrete-piercing bombs.

The DURANDAL has a cylindrical body 270 cm long with a diameter of 22 cm. It is fitted with cruciform wings with a span of 43 cm (Fig. 6). The bomb weighs

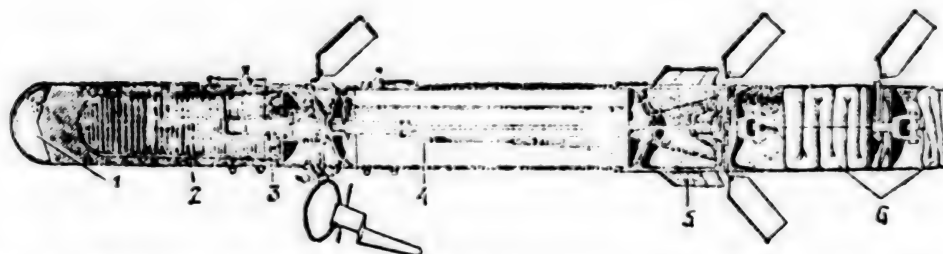


Рис. 6. Французская бетонобойная бомба «Дюрандаль»: 1 — противорикошетная носовая часть; 2 — боевая часть; 3 — взрыватель; 4 — ракетный ускоритель; 5 — оперение; 6 — парашют

Figure 6. French DURANDAL Concrete Penetrating Bomb.

- |                             |                    |
|-----------------------------|--------------------|
| 1. Anti-ricochet nose cone. | 4. Rocket booster. |
| 2. Warhead.                 | 5. Empennage.      |
| 3. Exploder.                | 6. Parachute       |

about 200 kg, has a 100 kg warhead and 15 kg of explosive material. It can be employed by an aircraft at an altitude as low as 60 m and in a 600-1,000 km/hr speed range. After being dropped, the bomb successively deploys two parachutes. The second [parachute] is detached when the bomb's dive angle reaches 30-40°. Then the rocket booster operates for 45 sec, accelerating the bomb such that, at the moment of impact with the runway, its speed is up to 200-250 m/sec. Having penetrated the concrete runway (thickness up to 40 cm), the bomb explodes after a 1-sec delay. Thus, according to the French specialists' statement, a crater 2 m deep and 5 m in diameter is formed and from its edge heaving occurs and large pieces of the runway are thrown nearly 15 m.

The DURANDAL bomb can be used from various aircraft (the base of the bomb hanger is 356 mm), including the MIRAGE, JAGUAR, F-4, PHANTOM-2, ALPHA JET, A-4 SKYHAWK, F-5 and the F-16. Judging from foreign press information, this bomb was accepted into the U.S. Air Force armament in 1984.

The BAP-100 (BAP - Bombe Acceleree de Penetration, Fig. 7), is similar to the DURANDAL bomb in construction and operating principle, but is distinguished by

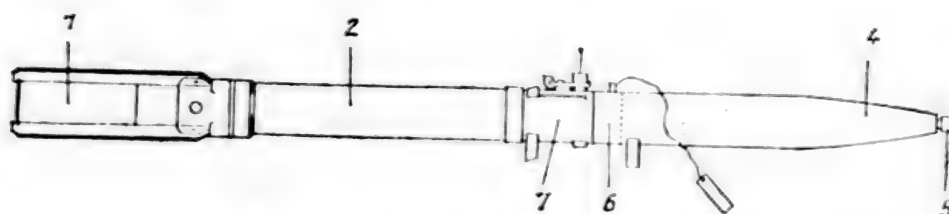


Рис. 7. Французская бетонобойная бомба BAP-100: 1 — контейнер с парашютом; 2 — ракетный ускоритель; 3 — узел подвески; 4 — боевая часть; 5 — пьезоэлектрический датчик; 6 — взрыватель; 7 — электронное устройство

Figure 7. French BAP-100 Concrete Penetrating Bomb

- |                              |                            |
|------------------------------|----------------------------|
| 1. Container with parachute. | 5. Piezo-electric emitter. |
| 2. Rocket booster.           | 6. Exploder.               |
| 3. Suspension assembly.      | 7. Electronic assembly.    |
| 4. Warhead.                  |                            |

its smaller weight and size (total weight - 37 kg, warhead - 20 kg, explosive material - 3.5 kg, length - 180 cm, diameter - 100 mm), and also by the method of suspension from the aircraft: two groups of 6, 8 or 10 bombs each are secured in the cassette by special adaptors. The BAP-100 bomb is dropped from such cassettes sequentially over a determined time interval from the aircraft flying lengthwise along the landing strip at a altitude as low as 50 m (80 m is considered optimal) and a speed of 600-1,000 km/hr. The explosion results in craters in the runway 15 m apart. Each bomb is capable of penetrating about 40 cm of concrete, and the explosion of the charge, can take place practically instantly (after 5 msec) after surface penetration or, with a variable time delay (up to several hours), depending on the setting on the exploder. In the Western press it is noted that the BAP-100 can be employed as a conventional bomb, in this case, the pilot disconnects the rocket booster ignition system before dropping the bombs.

As reported in the foreign media, at the present time, development of new aviation means for striking airfields is being conducted in France. Thus, the firm Marta, together with the West German firm of Messerschmitt-Bolkow-Blohm (MBB) is working on the creation of a multipurpose guided aviation cassette with modular construction, to be launched outside the target's air defense zone. This project has received the conditional designation of APACHE (Arme Planante A Charges Ejectables) and, in many respects, is combined with the CWS (Containerized Stand Off Weapon) family of cassettes being developed by the MBB firm. The APACHE cassette is fitted with a wing which deploys in flight

(wing span is approximately 3 m), and has a weight of about 1,000 kg, a length of 4 m, and a range of 7-15 km, depending on the mode of combat employment. By equipping it with an engine and with a terminal guidance system, the range is planned to reach up to 50 km. Both the West German sub-caliber STALBO concrete penetration bomb and the new French strike means are projected for use as cassette ammunition.

Several prospective munitions are being developed by the firm of Thomson-Brandt. They include a variant of the existing BM400 (400 kg) modular bomb, fitted with 8 BAP-100 concrete penetrating bombs, (each weighing about 30 kg). The latter is available in two modules. The modules, after the BM400 is dropped, are separated from its [the BM400] body over a determined interval and descend on parachutes. At present, a BM400 variant, with rocket accelerator is being tested. This will allow dropping the bomb from low altitude with a target range of about 7 km. It was contemplated accepting the BM400 into the French Air Forces munitions in 1984. They can be employed from the MIRAGE-5, JAGUAR, ALPHA JET and MIRAGE-2000 aircraft.

The possibility of creating a bomb similar in construction to the BM1000-1200 is being investigated. The BM1000-1200 (1,000-1,200 kg) will carry concrete penetrating munitions in groups of 24. The bombing range will be 7-10 km and, with the rocket-boosted version--up to 15 km.

Judging by the information in the foreign press, this firm, jointly with the West German firm of Dornier, is carrying out initiative development of the PEGASE-Family of multipurpose, modular construction weapons, somewhat reminiscent of the above-mentioned APACHE. It is envisioned to produce PEGASE in three versions: PEGASE-1 and PEGASE-2 (weight 450 kg and 760 kg respectively) as guided cassette bombs with a range of up to 6 km or, with a booster--15 km; PEGASE-3 (weight 760 kg), fitted with a turbojet engine (about 60 km). It is planned to make the drop of all of three cassette models in the altitude range of 50-100 m.

The PEGASE-Type weapon will have a cassette warhead fitted with various munitions, depending on its assigned mission. They will include concrete penetration for destroying runways and shelters. Flight tests of the PEGASE-1 are planned to begin in 1985. It is proposed to use a light-attack aircraft, such as the ALPHA JET, AMX (PEGASE-1), the multipurpose tactical fighter MIRAGE-2000 or the TORNADO (PEGASE-2 and -3) as delivery vehicles.

According to the Western media, the MW-1 bomb cassette, filled with sub-caliber concrete-piercing STABO bombs and MUSPA (Multi-Splitter Passive) mines, will be employed in the FRG for striking airfields. The bombs will be able to destroy landing strips and taxiways and the mines will hinder repair and restoration work.

The MW-1 cassette has been in development since 1977, as a multi-purpose weapon for the TORNADO fighter. It has four sections which contain 112 tubular (hollow) guided [word missing - projectiles?] with a diameter of 132 mm. The ammunition is fired by means of pyrotechnic charges on both sides of the cassette, with a timed-controlled sequence. A filled cassette

weighs about 4,700 kg, is 5.3 m long, 1.3 m wide and 0.7 m high. After the ammunition is fired, the empty cassette sections are jettisoned.

The STABO sub-caliber concrete-piercing bomb (Starthbahn bomb) contains shaped and high explosive charges (Fig. 11). The first breaks through the runway

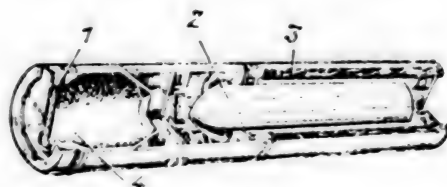


Рис. 11. Западногерманская малокалиберная бетонобойная бомба STABO: 1 — взрыватель; 2 — фугасный заряд; 3 — парашют; 4 — кумулятивный заряд

Figure 11. West German STABO Sub-Caliber Concrete Penetrating Bomb

- |               |                           |
|---------------|---------------------------|
| 1. Exploder.  | 2. High explosive charge. |
| 3. Parachute. | 4. Hollow charge.         |

facing and the high explosive charge penetrates into the hole which had been made, exploding with some delay. The bomb weighs 16.8 kg, is approximately 600 mm long, and 132 mm in diameter. On the order of 200 such bombs can be stowed in the MW-1 cassette. It is planned to introduce them into the West German Air Force units in 1987.

The MUSPA (Multi Splitter Passive) is equipped with a special seismic detector device, responsive to aircraft and transport equipment moving along the taxiway, and a fragmentation-high explosive charge. Tungsten-carbide fragments are used as the destructive elements. The effective radius of damage, when the mine explodes, is about 50 m. The mine is 134 mm long with a body diameter of 132 mm.

Apart from the above-mentioned ammunition, development was conducted in the FRG of a specialized weapon for striking concrete-reinforced aircraft shelters--ASW (anti-shelter weapon). According to air force experts' opinion, at the present time it is advisable, once more, to continue making this ammunition which will also be able to be used from the MW-1 cassette.

The development of aviation ammunition for striking airfields is being carried out in other countries--partners in the imperialist North Atlantic bloc. Thus, in Spain the BFRA concrete-penetrating bomb has been accepted into air

force armaments. It is similar in construction and operating principle to the French DURANDAL. Its basic characteristics are: weight, 330 kg; length, 300 cm; body diameter, 30 cm; and fin assembly span, 60 cm. It can be employed from an aircraft (F-4 or F-18) at a speed of up to 1,000 km/hr, and is capable of penetrating a runway cover about 600 mm thick.

Along with the missile-nuclear weapon, work is underway in NATO for the creation of conventional types of armament including aviation means for conducting strike on airfields, and with all obviousness they testify to the aggressive character of the measures underway in the USA, together with their bloc partners, and directed at preparations for war against the countries of the socialist camp. This obliges Soviet armed forces personnel to watch closely the schemes of the enemies of peace and progress and to heighten the vigilance and combat readiness to an even greater degree in order reliably to insure the security of the Motherland.

COPYRIGHT: "Zarubezhnoye voyennoye obozreniye," 1984

9355

CSO: 1801/142

FOREIGN MILITARY AFFAIRS

U.S. SEVENTH FLEET ACTIVITIES DESCRIBED

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 12, Dec 84 (signed to press 10 Dec 84) pp 69-74

[Article by Capt 1st Rank V. Afanas'yev; "The U.S. Seventh Fleet". According to foreign press information.]

[Text] Washington's attention to the Asian-Pacific Ocean region, which for a long time has attracted the American imperialists' greedy eyes, grows from year to year. The most striking evidence of this is the White House's foreign policy course, aimed at strengthening and expanding its position in this area.

Bourgeois propaganda justifies U.S. interest in the Pacific basin and Asia through economic-trade considerations, since the center of business activity is increasingly shifting in this direction. This is confirmed by the fact that U.S. trade turnover with Pacific basin countries now exceeds the volume of U.S. trade with Western Europe. However, the "Pacific Ocean list" shown in Washington's policy is caused not so much by economic-trade as by military-strategic considerations. The Pentagon envisages the Asian-Pacific Ocean region, primarily the Far East, Southeast Asia, and the Indian Ocean, as the second most important arena of military-political confrontation with the USSR. Stationed there is the largest (after the Western European) grouping of American armed forces abroad, the shock force of which is the Seventh Fleet--the highest operational formation of the U.S. Navy in the Pacific, which includes formations of all Navy branches and is intended for executing operational-strategic missions both in coordination with the other services of the armed forces and independently.

The Seventh Fleet was formed in 1943, to partake in combat operations against the Japanese Navy in the western sector of the Pacific Ocean. After the Second World War's completion, it was left in this region to safeguard the predatory U.S. imperialist ruling circles' interests.

The three years of dirty war in Korea (1950-1953) and more than ten years of participation in criminal adventures in Indochina (1964-1974), are stages of its "combat path." In the period of U.S. aggression in Vietnam, the Seventh Fleet's aviation and ships carried out barbarous bombings of peaceful cities and villages of the Democratic Republic of Vietnam, laid mines in territorial waters, ports, harbors, and rivers, conducted artillery bombardments of

coastal areas, landed landing parties, and hampered and sank Vietnam's peaceful trade and fishing vessels and boats.

Since 1969, in connection with Great Britain's decision to withdraw its armed forces from areas east of the Suez, air-capable strike groups and individual combat ship detachments of the Seventh Fleet began periodic patrol in the northwestern part of the Indian Ocean. Reportedly, 17 such voyages were performed from October, 1973, to December, 1978.

The year of the overthrow of the Shah's bloody regime in Iran and the Afghan revolution, which proclaimed the formation of the Democratic Republic of Afghanistan, 1979, marks the activation of American Navy actions in the Indian Ocean. Since this time, Seventh Fleet aircraft carriers have regularly been directed into the area.

At present, as stressed in the foreign press, the Seventh Fleet's "zone of responsibility" covers the Pacific and Indian Oceans, and is bounded on the north by the Bering Strait, on the south by the Antarctic, on the east by 160° East longitude, and on the west by the eastern coast of Africa. The total oceanic and sea area that it controls constitutes more than 50 million square miles.

According to statements by representatives of the U.S. Navy command, the Seventh Fleet is charged with the following basic missions: fight enemy fleet forces in order to gain and hold sea control; render support to the ground forces of the United States and its allies; conduct naval landing operations; defend sea and oceanic lines of communications; safeguard the actions of SSBN's on combat patrol; and safeguard demonstrations of military presence.

Speaking about this fleet's purpose, American naval specialists seek to put its defensive functions in the forefront (defense of supply lines, although they are located thousands of miles from U.S. shores, but have for the United States, as they alleged, vitally important significance) and keep silent about its offensive functions in every way possible. In fact, judging from numerous foreign press materials, the Seventh Fleet is called on to execute missions primarily of an offensive nature. This is confirmed by the appearance within the fleet of aircraft carriers, which always have been, and remain, an instrument of first strike and an instrument of aggression.

The Pentagon's Summer-1984, decision to begin to equip ships of the Seventh Fleet with cruise missiles is also evidence of the predominant role of the fleet's offensive missions. In one of his statements to Congress, the chairman of the American cruise missile program, Admiral Hostettler, so described this fact. The U.S. goal, he cynically declared, is "by means of a wide-scale deployment of cruise missiles of various types and modifications, which possess high accuracy and the capability of secretly flying to targets, to complicate the operations of the Soviet Armed Forces, forcing them to consider every U.S. naval formation as a source of potential threat, coming from practically all directions, without exception.

For executing the above-enumerated missions, the Seventh Fleet is made up of ships of various classes, aviation, and marines. The number of its ships and

personnel is not constant. Under normal conditions, it consists of one third of the Pacific fleet's total number, but in crisis situations, increases up to 50 percent. Thus, in 1959, the fleet numbered 125 combat ships and auxiliary vessels and 600 planes and helicopters (patrol, shore-based patrol, and marine). In the period of the greatest escalation of the war in Vietnam, the number of ships reached 225 units. In recent years, judging from foreign press information, 65 to 71 ships and up to 440 planes and helicopters (about 260 carrier aircraft, almost 30 shore-based patrol, and 150 marine) are normally attached to the Seventh Fleet. The Seventh Fleet's typical ship structure is listed below:

Multi-purpose aircraft carriers (including one nuclear)	3
Guided-missile cruisers (including nuclear) and battleships	3 - 5
Destroyers and frigates (including guided-missile ships)	28-30
Submarines (nuclear and diesel)	11
Staff landing ships	1
Multi-purpose landing ships or landing helicopter-carrier	1
Helicopter-landing docks	1
Transport landing-docks, tank-landing ships, and fuel-landing transports	3 - 5
Tankers and high-speed multi-purpose supply transports	7
Special weapons and ammunition transports	2
Supply transport or multi-purpose supply transports	1
Repair ships	1
Ocean-going tugs and rescue vessels	3

The fleet forces are divided organizationally into task forces, the number and structure of which depend on the existing military-political situation in the "zone of responsibility." Judging from foreign press material, the Seventh Fleet comprises the following task forces: TF70, battle force; TF71, control and operations coordination force; TF72, patrol and reconnaissance force; TF73, mobile logistics support force; TF74, submarine force; TF75 surface

combatant force; TF76, amphibious force; TF77, carrier strike force; and TF79, landing forces. In turn, the task forces are subdivided into task groups. The typical organization of the Fleet is presented in Fig. 1.

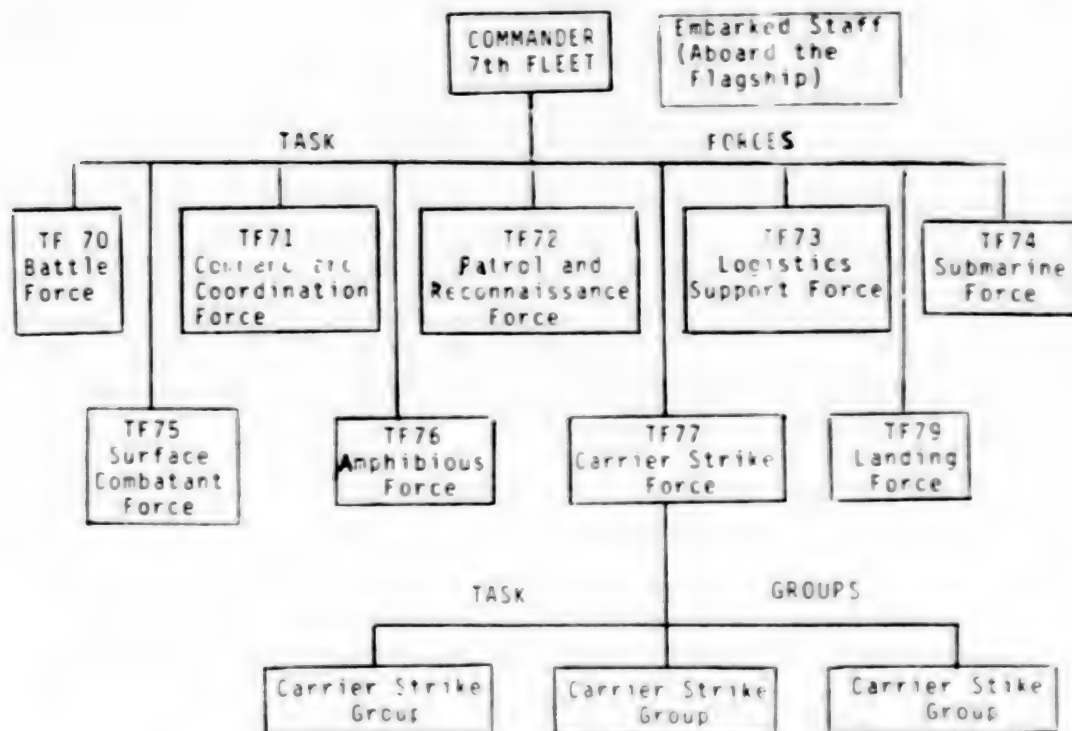


Figure 1. Typical U.S. 7th Fleet Organization

According to the views of NATO specialists, the fleet task forces possess high mobility, are in constant combat readiness, and have considerable striking power. They are most suitable for waging limited wars, in which the role of the main strike force is assigned to the aircraft carrier and the role of the first echelon of the forces of aggression is assigned to the marines.

TF70 (battle force), depending on the nature of the missions assigned to it, can consist of several operational groups of diverse fleet forces (aircraft carrier, surface ships, submarines, etc.).

TF71 (control and operations coordination force) exercises control over fleet forces. It includes the flagship (the staff landing ship BLUE RIDGE), in which the fleet commander's staff is embarked.

TF72 (patrol and reconnaissance forces) numbers about thirty variously modified shore-based Orion patrol aircraft constituting the Patrol Air Wing

ONE. Taking off from Japanese airfields (Misawa, Iwakuni, and Kadena) and the islands of Guam and Diego Garcia, they perform flights in the Okhotsk and Japan Seas, the northwest part of the Pacific, the Indian Ocean, and the Arabian Sea. According to the latest foreign press reports, the 7 to 12 shore-based Orion patrol planes, permanently based on Diego Garcia, change every 10 to 20 days.

TF73 (mobile logistics support force), executes the mission of materiel-technical supplying and servicing of ships at sea. In TF73, as a rule, there are up to 14 auxiliary vessels, including seven tankers and high-speed, multi-purpose supply ships, two special weapons and ammunition ships, a supply ship or a multi-purpose supply ship, a repair ship, and three ocean-going tugs and rescue vessels.

TF74 (submarine force) numbers up to 11 nuclear and diesel submarines. They provide carrier anti-submarine defense, fight surface ships and submarines, are used in conjunction with ships to work out protection against underwater missions mounted by the enemy in a given case, and carry out the delivery of reconnaissance-diversionary subunits to the enemy's coast, their disembarkation, and their removal.

TF75 (surface combatant force) can include three to five guided-missile cruisers (with both nuclear and conventional power plants) and battleships, as well as 28 to 30 destroyers and frigates with gun and missile armaments. The basic missions of this task force are: escort of aircraft carriers and landing ships, their anti-air and anti-submarine defense, render direct fire support to naval landing forces during their disembarking and operations ashore.

TF76 (amphibious force) is intended for the sea transport and disembarkation of marine landings on the enemy's coast by boats and helicopters. Within the amphibious forces, there generally are the staff landing ship, a multi-purpose landing ship or a landing helicopter-carrier, a helicopter-landing dock, and three to five transport landing-docks, tank-landing ships, and fuel-landing transports. Judging from Western press material, there are one or two marine expeditionary battalions, numbering 1,800 men, constantly on-board the formation's landing ships.

TF77 (carrier strike force) is the foundation of the fleet's combat might. As a rule, it includes two or three carrier groups (one of which can act as TF70 in the Indian Ocean, another in the South China Sea, and a third in the western part of the Pacific off the Japanese coast). However, their number can reach six, as, for example, in the period of escalation of combat operation in Vietnam. In 1984, judging from foreign press information, within the formation there were three groups headed by the aircraft carriers MIDWAY, RANGER, and EISENHOWER (nuclear). In each carrier group, there are 5-8 escort ships; cruisers, destroyers, frigates, and nuclear submarines.

Depending on the class of carrier, they normally carry 75 to 95 planes and helicopters, including 24 F-4 PHANTOM or F-14 TOMCAT fighters, 24 A-7 CORSAIR light attack planes, 12 A-6 INTRUDER medium attack planes, up to four E-2C HAWKEYE long-distance radar and control planes and EA-6B PROWLER electronic

warfare planes, 10 S-3A VIKING antisubmarine planes, four refueling planes, several reconnaissance planes, and six SEA KING anti-submarine helicopters. Roughly half of the planes are nuclear capable.

The carrier task forces took an active part in the aggressive war in Indochina. Three or four carriers were constantly in the Tonkin Gulf off the Vietnam coast and their planes carried out barbarous bombings of peaceful Vietnamese cities and villages and massive mining of internal waterways and territorial waters.

In the battles for Que-Son (January-April, 1968) alone, stress the Western media, carrier aviation made up to 1,600 bombing sorties a day. Over 77 days, more than 25,000 sorties were performed, 100,000 bombs of various calibers were dropped, and about 700,000 shells were spent. According to official Pentagon statements, it laid 11,000 mines from May to November, 1971.

As indicated in this article, in recent years Seventh Fleet carrier groups are being regularly directed into the Indian Ocean. Thus, in 1982-1984, the carriers CONSTITUTION, MIDWAY, RANGER, and EISENHOWER, in turn, conducted patrols in this region. The constant sojourn of the U.S. Navy into the Indian Ocean is one of the convincing illustrations of the hegemonistic strivings of U.S. imperialistic circles, aimed against peace, detente, and international cooperation; against the socialist camp countries and the independently developing states; and in defense of the most despotic and reactionary regimes.

TF79 (landing force) is manned by units of the 3rd Marine Division, stationed on Okinawa, and the 1st Marine Air Wing, deployed in air bases at Kadena (Okinawa), Futema and Iwakuni (Japan). Two marine expeditionary battalions, based on TF76 ships are permanent formations of landing forces. Within them, besides the marine battalion, there are reenforcement and maintenance subunits, as well as mixed air squadrons of INTRUDER or HARRIER combat planes, SEA KNIGHT transport-landing helicopters, and SEA COBRA fire-support helicopters.

The 7th Fleet's ship structure is changed every six to seven months with combat-ready ships of the Pacific Fleet. An exception, as stressed in the American press, is the 13 ships and auxiliary vessels permanently assigned to the following naval bases in the western part of the Pacific Ocean: Yokosuka (Japan)--the carrier MIDWAY, the staff landing ship BLUE RIDGE, the guided-missile cruiser REEVES, the guided-missile destroyer TOWERS, the frigates KNOX, LOCKWOOD, FRANCIS HAMMOND, and KIRK, and the supply ship WHITE PLAINS; Sasebo (Japan)--the diesel submarine DARTER; Subic Bay (Philippines)--the guided missile cruiser STERETT and the diesel submarine GRAYBACK; Apra (Guam)--the multi-purpose supply ship SAN JOSE.

Concentrating large fleet forces far from logistics bases, which are in the continental U.S., the U.S. Navy command uses naval and air bases on alien territories to supply day-to-day and combat activities.

According to foreign press reports, the 7th Fleet's largest bases are located in Japan (the forward naval bases at Yokosuka and Sasebo, the air bases at

Iwakuni, Atsugi, Misawa, Kadena and Futema) and in the Philippines (the forward naval base at Subic Bay and the airbase at Cubi Point).

The Yokosuka Naval Base occupies a special place in the Pentagon's plans. This is determined not only by Japan's favorable strategic position, but also by its high industrial potential. The base is located in Tokyo Bay, 65 km southwest of Tokyo. It is capable of supplying fleet ships with fuel and other types of POL, foodstuffs, water, clothing, spare parts and ammunition and of carrying out their refurbishing (including aircraft carriers) and repair. On the base, there are a hospital, a communications center, numerous depots and warehouses, and ship-repair facility with six drydocks. Western specialists declare the naval base's broad repair capabilities to be a complete ship-repair enterprise with highly-qualified specialists, which can perform work of practically any complexity. Proceeding from the above, the U.S. Navy command directly states the "without Yokosuka, the 7th Fleet could play no significant military and political role."

The Sasebo Naval Base is in the bay of the same name on the northwest coast of Kyushu Island. Here, there are large depots of ammunition, POL, and other items of materiel-technical provisioning. This base's ship-repair capabilities allow repairing all ships up to aircraft carrier size.

The Subic Bay Naval Base is located on the western coast of Luzon Island in Subic Bay, 80 km west of Manila. The dimensions of the base's water area (over 100 km<sup>2</sup>) and its depth (40 m at the bay's entrance and 30 m at anchorage sites) permits accommodating a considerable number of ships and auxiliary vessels here. There are more than 20 berths, including some for aircraft carriers. This naval base has numerous depot areas and warehouses of fuel and other types of POL, 3 floating drydocks (one of them with a tonnage of 50,000 tons), a hospital, and a communications center.

The Okinawa, Guam and Diego Garcia Islands are also used for basing fleet forces (supply, repair, and maintenance of ships and planes). Communications with ships in the Indian Ocean is provided by the communications center at Northwest Cape (Australia).

Operational and combat preparation of the American 7th Fleet is directed toward practically working out its assigned missions, raising the combat capabilities of its forces and resources, and maintaining them in constant readiness to unleash military adventures and participate in war using conventional and nuclear weapons. The degree of readiness for war, foreign military specialists stress, is checked primarily during exercises (both national and those enlisting the armed forces of U.S. allies), the number and scale of which are constantly growing. The exercise areas are drawing closer to the Soviet Union's borders. In recent years, the largest of those exercises were TEAM SPIRIT, REDEX, RIMPAC, FLEETEX, and ASWEX. Aircraft carriers were the most active participants in them.

The above facts about the combat use, organization, structure, purpose, and directions of the combat preparation of the 7th Fleet--the Pentagon's shock forces in the Pacific and Indian Oceans--strikingly testify to the aggressive essence of the American ruling circle's plans with respect to this region, which comes to the establishment of its diktat here.

COPYRIGHT: "Zarubezhnoye voyennoye obozreniye," 1984.

FOREIGN MILITARY AFFAIRS

ANTI-SHIP MISSILE EMPLOYMENT DISCUSSED

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 12, Dec 84 (Signed to press 10 Dec 84) pp 74-78

[Article by Vostrikov, V. and V. Volobuyev; "Employing anti-ship missiles;" passages rendered in all capital letters printed in boldface in source]

[Text] Achievement of military superiority over the Soviet Union the main goal of the political-military ruling circles of the U.S. and its NATO allies. The realization of this superiority is being carried out along various lines, one of which is the further increase in the combat capabilities of conventional armament. In this area, special attention is being paid in the NATO navies to the development of sea-based anti-ship missiles (SSM).

Scientific and technical progress in military affairs, as well as the experience of combat use of anti-ship missiles in local wars, has allowed the most developed capitalist states to create, in the past decade, a new generation of tactical and operational-tactical anti-ship missiles which have become the foundation of the NATO navies' armed forces.

In this article, prepared from foreign press information, some anti-ship missile tactical characteristics and their influence on the sea battle will be discussed.

At the present time, there are, in the capitalist states' naval armament, more than 16 types of anti-ship missiles. The TOMAHAWK and HARPOON (US), EXOCET (France), and OTOMAT (Spanish and Italian production) have received the widest distribution.

The BGM-109B TOMAHAWK missile (range up to 550 km) is intended for use in U.S. Navy nuclear submarines, battleships and cruisers. The RGM-84A HARPOON missile (110-130 km), developed in 1977, is in the naval arsenal of 15 capitalist countries allied to the U.S. The MM38 EXOCET missile (42 km), developed in 1974, is in 18 countries' navies. Six countries have ordered the MM40 (70 km) modification of this guided missile and five have bought the AM39 EXOCET (70 km) and the SM39 (50 km).

The OTOMAT SSM has two versions, MK-1 and MK-2. Navies of six countries are outfitted with the first (range, 80 km) and the second has been designated

TEZEO (up to 180 km) by Italy and is in the Spanish and Italian naval arsenals.

Also relevant are the modern anti-ship missiles: the British SEA SKUA (range, 22 km), MARTEL (60 km) and in prospect, the SEA EAGLE (over 100 km); Italian SEA KILLER MK1, 2 & 3 (10 and 25 km); FRG AS-34 CORMORAN (up to 37 km); Norwegian PENGUIN MK1, 2 & 3 (20-50 km; Israeli GABRIEL MK1, 2 & 3 (18-40 km, and an aviation version--up to 60 km).

It is noted in the Western press that the attempt to introduce them into all basic classes and types of naval delivery vehicles: surface ships and submarines, aircraft and helicopters, is a characteristic feature of the plans to equip capitalist countries' navies with anti-ship missiles. The foreign specialists consider that this situation, is caused by the weapon's high tactical characteristics, to which they ascribe: general-purpose; comparatively greater range; high kill accuracy and excellent destructive capabilities; low flight profile and small reflective surface, ensuring a concealed approach to the target; sufficient combat stability; and a high degree of combat readiness.

The anti-ship missiles' general purposeness lies in the possibility of employing them from any delivery vehicle (by using various launchers) and also in the capability to hit maritime targets day and night.

In the U.S. Navy, all classes of surface ships, LOS ANGELES- and STURGEON-Class nuclear submarines, carrier aircraft (A6 INTRUDER and, after 1987, the S-3A VIKING) and shore-based patrol P-3C aircraft are armed with HARPOON.

According to foreign press data, all American fleet ships under construction or undergoing modification are being equipped with HARPOON missiles and part of them with the TOMAHAWK. Thus, after demothballing, in the subsequent modernization of the IOWA-Class battleships, they will be armed with HARPOON (16 units) and TOMAHAWK (32) by dismantling part of the 127-mm gun mounts.<sup>1</sup>

As reported in the foreign press, it is envisaged arming 400 cruisers, destroyers and frigate surface combatants, more than 100 U.S. and British nuclear submarines, and missile boats of 15 capitalist countries only with HARPOON missiles. The total number of guided-missile launchers in the navies of capitalist countries, according to Western military specialists' calculations, will be approximately 3,300, including 2,400 on surface ships, 470 on submarines and 440 on missile boats. Additionally, shore- and carrier-based aircraft will be equipped with HARPOON.

The characteristic feature of this missile is the possibility of launching it from various launchers. Surface combatants can use the anti-air TARTAR launcher (MK11, 13 & 22), the TERRIER (MK10), the ASROC launcher (MK112), the MK26 general-purpose launcher and also a container-type launcher, in which the transport-launcher container, with a HARPOON, is mounted on a fixed foundation on the deck of a ship. The missile, located in a hermetically-sealed capsule, is launched from a submarine from a torpedo tube and an aircraft can use regular equipment. The EXOCET and OTOMAT missiles have the same general-purpose characteristic.

In analyzing the enumerated information, Western experts consider that the universal character of using the anti-ship missile gives that type weapon significant advantages. They consist primarily of the opportunity of using diverse fleet forces in the sea battle, expanding the anti-ship missile's sphere of influence to surface ships and a sharp increase in any ship formation's striking power, thus, for example, the typical American carrier strike group (a carrier and up to 8-10 protecting cruiser, destroyer and submarine classes of ships) can have in its armament up to 120-130 anti-ship missiles of 110-550 km range and can mount massive missile strikes by surface groups, taking into account the carrier aircraft radius of action, to a distance of more than 1,200 km from the carrier.

Ship strike groups comprising cruiser-, destroyer- and also nuclear submarine-type ships, can operate together with carrier strike groups. The coordinated and inter-connected operations of diverse fleet forces ensure inflicting effective strikes on enemy ship formations over a significant water area.

Foreign military specialists divide anti-ship missiles into three categories: short-range (up to 30 km), medium-range (130 km), and long-range (up to 550 km). On the basis of this, they are developing tactics for operating their deliver vehicles and ways for employment.

According to the experience of the Indo-Pakistan conflict (1971), and the Arab-Israeli war (1973), short-range missiles were employed by missile boats using data from their own detection equipment while closing the enemy to effective firing ranges.

As foreign specialists emphasize, such anti-ship missiles as the SEA SKUA, SEA KILLER and GABRIEL, are guided from the delivery vehicle over the entire trajectory to the target. The use of similar missiles results in a relative simplicity of organization of the sea battle. Evidence of this is the experience of the Anglo-Argentine conflict of 1982, during which the British successfully employed the SEA SKUA and the AS-12 missiles, which have short ranges (up to 20 km), from helicopters.

The new generation missiles' great range causes certain organizational difficulties for their effective use, which accounts for, in particular, the necessity for advanced target detection, for determining certain elements of its movement and reliable target designation.

Western military specialists consider that successful employment of long-range anti-ship missiles requires earmarking supplementary forces--aircraft, helicopters and surface ships--equipped with appropriate radio electronic equipment, for detecting a target for strike, controlling strike forces, and transmitting target designation. This is being corroborated during practice missile firings in foreign navies' exercises.

The successful ship kill with missiles, it is noted in the foreign press, depends not only on target designation data, which permits selecting the flight direction and range for homing warheads (GSN) engagement, but also on the probability of its locking on the target in the terminal phase of the

flight. This is ensured primarily by a sufficiently large GSN target search band. Thus, the HARPOON's homing warhead has a  $\pm 45^\circ$  field of view. Its working frequency is randomly switched over a wide range. It can carry out a search with the use of a small, medium or large search zone depending upon the range and the availability of target data.

HARPOON launches from aircraft and U.S. Navy surface ships during exercises in 1980, showed a rather high hit reliability for surface targets. Judging from foreign press material, of 61 missiles fired, 58 (95 percent) hit the target.

The EXOCET family of anti-ship missiles, in which the identical homing head is installed, has a high hit probability. They allow locking on a target which is moving in the warhead's zone of action at speeds of up to 40 kts. In tests in 1980, out of 110 launches of these missiles, 102 (93 percent) were successful.

It is believed that, under present day conditions, one aircraft, with anti-ship missiles, which penetrates the air defense zone, is sufficient to destroy, or put out of action, a large ship. Thus, the British guided-missile destroyer SHEFFIELD was hit by a single AM39 EXOCET SSM, launched from a SUPER ETENDARD aircraft at a distance of 30 km. The following facts contributed to the successful missile attack: the aircraft's low altitude, poor visibility (about 400 m), the use of the shore-based NEPTUNE patrol aircraft for guiding the strike aircraft to the target and the lack of the required detection organization in the destroyer.

Modern anti-ship missiles' wide scope of operational range and significant probability of a direct hit, are combined with high striking power which is achieved by their warhead's relatively-large mass. As a rule, the penetrating-type warheads are equipped with contact exploders with a time delay, which actuates after the missile penetrates inside the ship. Because of this, the greatest destructive action is achieved.

The high combat stability and secrecy of the missiles' approach, are ensured by their complex flight trajectory, the insignificant reflective surface, which make it difficult to detect them in a timely fashion, and the short time the missile is in the target's air defense zone.

On the whole, all anti-ship missiles' flight trajectories are similar and include three phases: climb to altitude and speed, cruise, and terminal. It is noted in the foreign press that, after launch from any delivery vehicle, the missile goes into the cruise phase, during which the majority of guided missiles fly at low altitude (from 15 up to 40 m). The very lowest altitude (down to 7-8 m, depending upon the sea state) takes place in the terminal phase of the trajectory (during the approach to the target). In a number of cases, at a distance from the target, preprogrammed for most effectively overcoming the close-in air defense zone, the missile can execute a vertical climb with a dive to the target (Fig. 2).

Such complex missile flight profiles and the methods for overcoming the target's close-in air defense zone, in combination with the small reflective surface (effective area does not exceed  $0.1 \text{ m}^2$ ), makes it difficult to detect

them in a timely manner and reduces the time of the firing equipment and electronic countermeasure systems' influence on them.

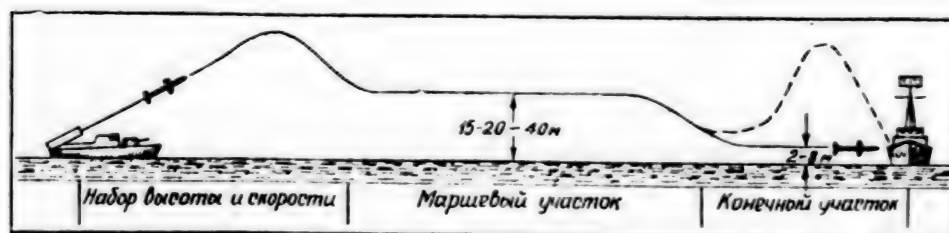


Figure 2. Anti-ship Missile Flight Profile

1. Climb to altitude and speed.
2. Cruise portion.
3. Terminal portion

As the western press notes, in conditions of employing long-range (over-the-horizon) anti-ship missiles and for conducting the sea battle over a wide area in dispersed battle formation, reconnaissance's role sharply increases. The problem of transmitting target designation data to the delivery vehicles in near real time, acquires cardinal significance. The U.S. Navy is attempting to solve the problem by creating a special over-the-horizon target designation system, OUTLAW SHARK, envisioning the detection of surface targets by all forces and resources deployed in the zone. Information concerning the surface situation will be processed at special centers, to which target designation data must be transmitted in real time.

As local war experience has shown, the combat potential of fleets of diverse forces, equipped with anti-ship missiles has significantly increased. However, in foreign specialists' opinion, this does not mean that missiles are the "absolute weapon." They have definite inherent shortcomings, among which are: subsonic speed and vulnerability from ships' firepower, limited target discrimination and the homing head's low electronic anti-countermeasures, the necessity of drawing in special forces for insuring combat stability for the delivery vehicles, the allocation of reconnaissance forces, and the difficulty in organizing massed missile strikes. Combat operations in the South Atlantic point out that, when detected in a timely manner, anti-ship missiles can be hit by ships' anti-air missiles or guns or, disoriented by passive interference.

Western specialists believe the following countermeasures to be effective: first of all, destroy the missile delivery vehicle, and also the forces which are exercising control and transmitting target designation data; production of interference; destruction of the anti-ship missiles with missiles or ships' guns. The task of detecting and destroying the delivery vehicles up to the

time they arrive at the missile launch line, and also of neutralizing the forces and resources for control and target designation transmission, can be carried out by organizing special submarine, aircraft and surface ship strike force operations.

At the same time, great attention is being paid abroad to the issue of anti-missile defense, which can be achieved with high effectiveness by organizing the necessary enemy reconnaissance, forming own forces into optimal cruising and combat formations, detecting the missiles after launch and destroying them, efficient interaction between defense forces and resources, the creation of interference, and carrying out arrangements to provide cover and deception.

The basis of anti-air defense is the timely detection of anti-ship missile delivery vehicles by airborne long-range radar detection equipment. Only in this way is it possible to make ready the ships' fire power in time to repel a missile.

In the opinion of Western experts, surface ships must have more-improved long-range anti-air missile systems, self-defense missile systems and anti-aircraft guns capable of destroying anti-ship missiles which have penetrated the ship formation's air defense zone. It is considered that long-range anti-air missile systems acquire special significance when there is no fighter cover.

As the specialists note, it is necessary to pay serious attention to the improvement of radio electronic suppression equipment. This would provide protection not only against electronically-controlled missiles, but also against weapons with laser and infrared homing heads. During the Anglo-Argentine conflict, the British successfully employed dipole reflectors for combating anti-ship missiles. This allowed drawing the conclusion that it is necessary to have onboard ships an automated system for quickly changing the launch mode of the dipole reflectors to various directions and simultaneous increase their number and range of employment.

Foreign specialists believe a serious deficiency is the limited number of anti-ship missile launchers on surface ships and submarines which does not allow launching the necessary number of missiles in a salvo. Stowing anti-ship missiles in anti-air and anti-submarine missile system magazines is considered tactically unjustified because it reduces the anti-air and anti-submarine ammunition. Various variants are being investigated for increasing the anti-ship missile ammunition and systems aboard ship for additional missile launchers. In particular, as mentioned in the foreign press, in the OLIVER H. PERRY-Class guided-missile frigates, it is proposed to remove the aviation armament (2 LAMPS helicopter systems, with ammunition and fuel) and in place of it, install 8 TOMAHAWK and 48 HARPOON anti-ship missiles. As a result of such additional armament, the guided-missile frigates will be capable of producing one 8-missile TOMAHAWK salvo and three 16-missile HARPOON salvos. Also under consideration is a variant for lengthening these ships by 6.1 m, which will allow stowing 8 TOMAHAWK anti-ship missiles and 64 HARPOON while retaining the aviation armament. It is proposed to effect a similar increase in missile armament in other ships, in particular in the SPRUANCE-Class destroyers.

On the new series of TICONDEROGA-Class cruisers (three have been built) in place of the MK26 general-purpose launcher, it is planned to have the MK41 general-purpose vertical missile launcher, which is designed for launching all types of anti-ship, anti-air, and anti-submarine missiles. The total ammunition allowance of these launchers comprises 122 missiles. Beginning with the sixth ship of this series, 24 TOMAHAWK missiles will be stowed in the MK41 launchers (12 each, forward and aft). A special vertical-launch TOMAHAWK launch system is being developed for nuclear submarines. The missiles will be located in hermetically-sealed containers outside the pressure hull. It is proposed to install the first such system of 12 containers in the LOS ANGELES (SSN-688)-Class SSNs in the bow, aft of the circular AN/BQS-5 sonar array.

The above-discussed tactical features of the anti-ship missiles and the conditions of their combat employment, as well as the experience of local wars are evidence of the fact that anti-ship missiles will find wide application in a sea battle against surface ship formations, landing detachments and convoys.

Under modern conditions, the sea battle, as Western specialists note, has attained new features. It can be organized in large areas significantly remote from enemy forces outside his visibility. Both homogeneous and heterogeneous forces, capable of delivering simultaneous or consecutive missile strikes at various ranges and directions, will take part in the sea battle. In view of fleet forces' high combat readiness and mobility, it will be characterized by high dynamism and transitory nature, rapid shift of forces from one strike target to another and the massive use of missiles on the main axis.

1. For more details on the refitting of American battleships, see: "Zarubezhnoye voyennoye obozreniye," No. 9, 1983, pp. 57-62.

COPYRIGHT: "Zarubezhnoye voyennoye obozreniye," 1984

9355

CSO:1801/142

FOREIGN MILITARY AFFAIRS

MINESWEEPING WITH UNDERWATER VEHICLES DISCUSSED

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 12, Dec 84 (Signed to press 10 Dec 84) pp 81-86

[Article by Capt 1st Rank P. Mochalov; "Underwater Devices for Combatting Mines;" passages rendered in all capital letters printed in boldface in source]

[Text] In the naval forces of the countries which are members of the aggressive North Atlantic bloc, concomitantly with the development of new models of mines, great attention is being paid to the development of the means for combatting them, including remote controlled underwater vehicles designed for the classification, identification and destruction of mines. Not long ago these problems were resolved by traditional trawls or specially trained swimmer-minemen, stationed on the trawler. However, in foreign specialists' opinion, the first [ways] were not very effective against modern mines that were provided with combination exploders and the operation of the second depended to a large extent on surrounding conditions (the possibility of classifying and destroying mines falls off sharply with a deterioration of sea conditions) and involved a large risk to life.

The appearance of unmanned remote controlled underwater vehicles (first in France) significantly accelerated the execution of anti-mine operations, enhanced their reliability, reduced the risk for life of the ship's crew, and allowed minesweeping in deep water areas and under unfavorable sea conditions. Presently, similar devices are being developed also in the U.S., FRG and Italy.

FRANCE. The PAP104 wire-guided underwater vehicle, developed by the French firm ECA is designed for classifying and identifying underwater objects detected by shipboard sonar and also for destroying mines by means of demolition charges. It is equipped with a storage battery; two side-by-side motors with controllable pitch propellers; a TV camera with a flood light; gyroscope; guiderope; electronic device; an acoustic transponder tuned to the frequency of the ship's sonar; and a coaxial cable reel for transmitting control commands to the vehicle and information from it to the ship's receiver, describing the operation and state of the device and the demolition charge.

The remote control system is located in a ship and comprises a main console and TV monitor, installed at the control post and also an auxiliary console (on the navigation bridge).

Until now, the firm has developed several modifications to the PAP104 underwater vehicle; MK1 has a steel hull and MK2 has a hull of aluminum alloy. The cost of the latter model was reduced by using a standard lead-acid battery and TV camera. The PAP104 MK3 underwater vehicle was build for export to the FRG, Great Britain, The Netherlands and Belgium, where, in the 1970's minesweepers were refitted as minesweeper-hunters. The magnitude of their acoustic and magnetic signatures were significantly reduced, control was upgraded and the anti-corrosion properties were improved.

On order from the Malaysian Navy, the MK4 modification (depth of submersion 300 m) was developed for use on an Italian-built LERICI-Type minesweeper. It is a reconfigured MK3 device in which new electric propulsion motors, an acoustic transponder, demolition charge, control cable, and a more reliable electric motor, built by the ECA firm in 1982, were installed. The cable has a low level of signal attenuation, which insures high-quality transmission of the TV signal. Subsequently, by using a sonar (its installation was envisaged in the MK4) with such a cable, it will be possible to transmit, without distortion, secondary acousatic signals describing the object being observed.

In accordance with FRG Navy requirements, with a goal of improving the potentialities of the PAP-104 device for conducting mine search-and-destroy operations in the Baltic Sea's poor visibility conditions, the firm ECA is developing a high resolution sonar (they have been testing it since 1982). The firm's specialists calculate that the target detection range will be about 20 m, which is significantly more than that obtained using a TV camera. With the help of the sonar, it is possible more accurately to determine the mine's location and drop the demolition charge.

The FRG Navy intends to have two PAP-104 devices aboard four minesweepers in order to provide the necessary reserve should one underwater vehicle be out of commission or lost. If the ship can control only one device, then it is planned to equip it with either a sonar or a TV camera (depending upon visibility conditions).

Experience of using the PAP-104 devices in the NATO bloc countries' navies confirm that, on average, they execute 5 mine search, classification and destruction operations, each lasting 15 minutes before recharging the battery or changing it (this takes 10 minute. According to the foreign specialists' estimation, the lead-acid battery significantly reduces the device's operational costs. Over the past three years, battery capacity has increased by 50 percent while its volume has been reduced by 20 percent.

It is noted that the improvement of the PAP-104 device will follow the path of increasing the electric propulsion motor's power (this will allow it to be used in regions with tidal currents and in state-6 seas), and also simultaneously installing a sonar and a TV camera.

For destroying mines detected by the shipboard sonar, the PAP-104 is lowered overboard from the ship and sinks until the guiderope touches the bottom. Then, it is guided to the underwater object by operator command, and, in so doing, the control cable is unwound from the reel installed in the vehicle's hull. When the vehicle gets close to the object (it is controlled by the signals of an acoustic beacon mounted on the vehicle's hull), its speed is reduced and, by means of the TV camera, the object is identified. The PAP-104 is highly maneuverable which permits inspecting the object in detail. If it turns out to be a mine, then the operator brings the vehicle to it and detaches the demolition charge with the guiderope. But if it is not a mine, then only the guiderope is detached. After that, the vehicle surfaces, is brought alongside and hoisted aboard. The demolition charge is detonated on signal from the ship and destroys the mine.

USA. The firm Honeywell is developing the MNS underwater vehicle which is designed to detect, classify and destroy bottom or anchored mines in any visibility and in heavy seas and at significantly greater depths than the PAP-104 vehicle. It is not only wire-guided, but also is supplied with electric energy which allows it practically unlimited operating time. The vehicle is lowered and hoisted on the ship, by specially-developed cargo-handling gear and two booms, even during rough seas by using special securing gear.

On the MNS's stern (at the nozzle) there are two 15-hp propellers with hydraulic drives and, in the middle, two steering devices (one in the vertical plane and the other in the horizontal), providing precise maneuvering in the vicinity of the target. The device is equipped with a demolition charge for destroying bottom mines and a jaw for cutting the cable of moored mines. Its total weight, including the hoisting assembly and the control consoles is 11.8 tons. The vehicle is equipped with a high-resolution sonar for searching for mines detected by the ship's sonar, trainable TV cameras which work in low-light conditions and flood lights. An acoustic emitter is mounted on the upper part of the hull.

A diagram for conducting mine search, classification and destruction operations is shown in Figure 2.

FRG. The West German firms MMB and VFW are developing the wire-guided underwater vehicle Penguin-B3 for search, identification and destruction of bottom and anchored mines. Its glass-reinforced plastic hull consists of three compartments bolted together. The vehicle is transferred to the search area on the surface or at a shallow depth, thanks to slight positive bouyancy. In a given instance, the operator guides it from the ship's deck, by a small portable console. Its automatic transit to the target area, by means of a special program, is envisaged (in this case, the operator sets the course, speed and final depth). The Penguin-B3 is easily controlled and can hover over a mine (underwater object). Safety of movement is ensured by a depth sensor, but also by a fathometer with the help of which the desired depth of submergence is controlled. The fathometer is used when the device is hovering above a mine at the distance off the bottom set by the operator. The vehicle has an electronic device which, in the developers' estimate, provides simplicity, effectiveness and security of control from a ship.

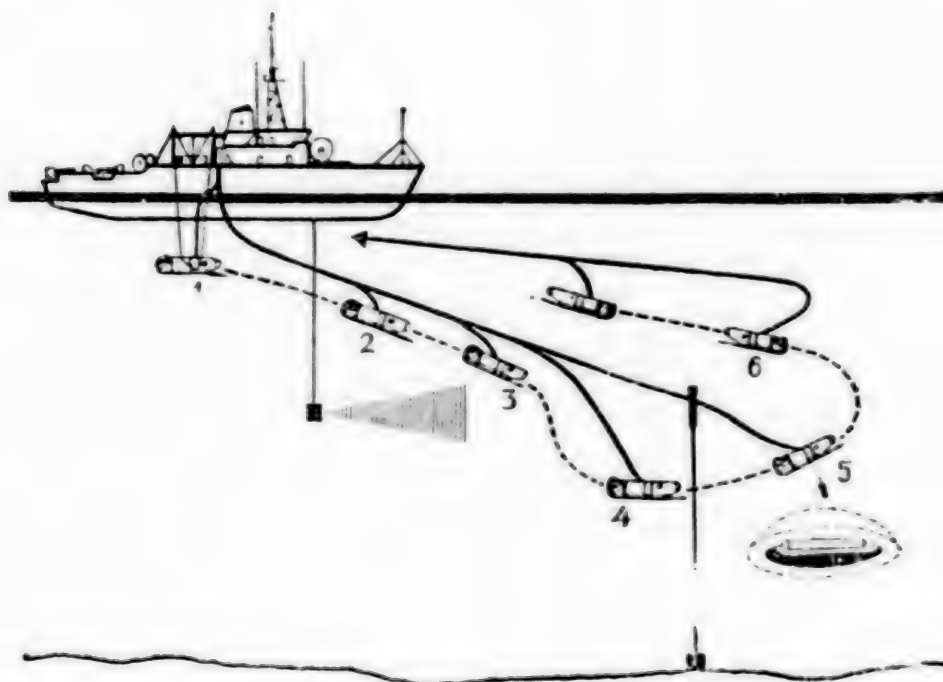


Figure 2. Schematic for conducting a mine search, classification and destruction operation using the MNS underwater vehicle.

- |                            |                                |
|----------------------------|--------------------------------|
| 1. Launch                  | 4. Destruction of moored mine. |
| 2. Transit to target area. | 5. Destruction of bottom mine. |
| 3. Mine search.            | 6. Vehicle returns to ship.    |

A standard storage battery is used as the source of power. It is located partly in the forward and partly in the center compartments. According to the client's requirements, a nickel-cadmium battery (providing 1-hr working time) or a silver-zinc battery (3-hr working time) can be installed. The latter has substantially greater cost and a short service life. It is possible to recharge the storage battery and not remove it from the vehicle.

In the after part of the vehicle, two cones (fairings) with electric motors are mounted which swivel the propellers installed on the tip (nozzle). Course control is achieved by changing the thrust of these propellers and in the vertical plane while underway by horizontal rudders mounted aft of the controlling (directing) nozzles. A vertical steering device is mounted in the vehicle's midship section for controlling the vehicle during speed reduction or maneuvering.

Mine search and detection is accomplished using a highly-sensitive TV camera which has two fields of view: a narrow one forward of the vehicle and a second wide one, under it. This allows using the vehicle for identifying and destroying both bottom and anchored mines. According to foreign press information, for operations during poor visibility, it can be equipped with a high-resolution sonar instead of or in addition to a TV camera.

Digital information is transmitted by cable by the impulse-modulated signal method which allows excluding the influence of interference from an operating vehicle. In case there is a break in the cable or an accidental interruption in information, the vehicle shuts down and surfaces.

In contrast to the PAP-104, the Penguin can carry 2 demolition charges, make up to 8 kts during transit, automatically maintain a set depth of run or hover, thus providing a stabilized work platform for the search and destruction of mines. The use of the depthmeter and the fathometer instead of the guiderope excludes clouding the water with bottom sediment and creates better conditions for TV camera work. The Penguin vehicle carrying two charges on one dive can destroy two mines. As noted in the foreign press, two test models were built for conducting tests.

ITALY. The firm of SWIN is developing the MIN underwater vehicle, for equipping Italian LERICI-Type minesweeper-hunters which are under construction. A contract for four such vehicles was signed in 1979. The first of these was scheduled for delivery in 1983.

According to the developers' estimate, the vehicle has low-level acoustic and magnetic signatures, which is attributable to the hull which is made of non-magnetic materials and uses, instead of a storage battery and electric propellers, a hydropneumatic battery and hydro motors for driving the main motor and the two steering devices. The vehicle is controlled in course and depth by turning the principal propellers--the propellers in the nozzle--in two planes. The steering devices give it high maneuverability in the immediate vicinity of the object being inspected and allow hovering and permits rotation around the vertical axes in the horizontal plane. The vehicle is equipped with a TV camera mounted on the bottom part of the hull at an angle of 50° to the vertical axes, a flood lamp and a sonar. The navigation devices include a fathometer and a gyrocompass. A demolition charge is employed for destroying bottom mines and for intercepting anchored mines' mooring cables there is an explosive cutter. The TV camera and sonar can be used simultaneously during the search, classification and destruction of mines. Communications between the vehicle and the minesweeper is maintained through a coaxial cable 1,000 m long. The underwater vehicle is controlled from the fixed and portable consoles which are fully compatible with the shipboard minesearching sonar AN/SQQ-14.

The Italian firm Gaymarine in developed the PLUTO small wire-guided underwater vehicle (weight, 150 kg) for searching for, identifying and destroying bottom and anchored mines. Having small weight and size characteristics, it does not require special cargo-handling equipment for launch and recovery. Therefore, it can be used from any minesweeper.

The Pluto vehicle consists of two glass-reinforced modules mounted on a frame of non-magnetic stainless steel which allows reducing to a minimum the magnitude of the magnetic signature. For mine search and identification, the following equipment is used: a TV camera mounted in the bow module with a resolution of 400 lines and an objective [lens] with a focal length of 12.5 mm, two 75 v halogen lamps, a sonar (frequency 200 kHz and 30 m range), photographic camera with flash and a magnetic compass. Mounted in the stern module are: the power source (a battery with heavy helium electrolyte), an electronic control device and four electric motors for turning the propellers, two in the horizontal plane and two in the vertical. The installation of a fifth propeller is envisaged. It will be in the fore and aft plane for improving the vehicle's maneuverability. The power source provides a 2-hr working time. The battery can be charged without removing it from the module. The stern module is fixed and the bow [module] can rotate through 250° around the horizontal axis creating favorable conditions for TV camera work.

The vehicle can carry one demolition charge for destroying bottom mines or a trawling jaw for cutting anchored mines' mooring cables which works remotely after the vehicle has moved out to a safe distance.

The firms' specialists estimate that one mine search-and-destroy operation will require 30 minutes, including launch and recovery time; moving a maximum of 500 m; search; classification; deploying the demolition charge; and returning the vehicle back aboard ship. The vehicle is controlled from a portable console (300 x 300 x 400 mm), in which the information received from the vehicle (depth, speed, course, horizon, distance to the object being investigated, its image, the bow module's angle of tilt, state of the mechanism for deploying the charge). A computer and video recorder and display unit can be connected to the console. The vehicle is connected to the console by a 500-m long coaxial cable with positive bouyancy. The cable's tensil strength is 180 kg.

COPYRIGHT: "Zarubezhnoye voyennoye obozreniye," 1984

9355

CSO: 1801/142

### LIST OF THE JOURNAL'S PUBLICATIONS IN 1984

[Text]	ITEM	ISSUE
--------	------	-------

Information Report on the CPSU Central Committee Plenum.....	3
Speech of CPSU Central Committee General Secretary, Comrade K. U. Chernenko.....	3
Speech of CPSU Central Committee Politburo Member, USSR Council of Ministers Chairman, Comrade N. A. Tikhonov.....	3
Presentation by CPSU Central Committee Politburo Member, CPSU Central Committee Secretary, Comrade M. S. Gorbachev.....	3
Konstantin Ustinovich Chernenko.....	3
Address of CPSU Central Committee, USSR Supreme Soviet Presidium and USSR Council of Ministers to the Communist Party and the Soviet People.....	3

Guarding Peace and Socialism.....	1
Imperialism - The Peoples' Worst Enemy.....	2
Visible Goals of Creation.....	3
The Soviet Peoples' Inspiring Force of Victory.....	4
Firm Military Discipline is a Guarantee of High Troop Combat Readiness.....	6
In Combat Readiness, Always on the Alert.....	8
Anti-Communism - The Weapon of Imperialism.....	9
On the Course of Great October.....	10
On the 40th Anniversary of Victory. The Falsifiers of History in Imperialism's Service.....	12

Dolgoplov, Ye. Local Wars in Imperialism's Military Policy.....1  
Viktorov, V. The Direction of Operational and Combat Training of  
NATO Joint Armed Forces.....1

Dorokhov, P. South Korea's Armed Forces.....	1
Ivanov, F. and S. Semenov. The Outrageous U.S. Aggression Against Grenada.....	1
Samoylov, B. Italy's Military Policies.....	2
Zhovanik, A. Development of U.S. Ground Forces Communications Systems.....	2
Stepanov, S. Officer Training System for British Armed Forces.....	2
Kosikov, I. Women in Military Service Abroad.....	2
Emel'yanov, V. Scandinavian Countries' Civil Defense.....	2
Belov, I. Western Europe: Nuclear Hostage of U.S. Adventurers.....	3
Vasil'yev, A. Switzerland's Armed Forces.....	3
Chugunov, Ye. The United States: Counting on Preparations for Nuclear War.....	4
Chupron, S. Neo-Nazism and the Bundeswehr.....	4
Saneev, V. Egypt's Armed Forces.....	4
Kuzyrev, A. Israeli Aggressors are Consolidating Their Positions in Lebanon.....	4
Emel'yanov, V. Scandinavian Countries' Mobile Columns for Civil Defense.....	4
Volkogonov, D. The Strategy of Adventurism.....	5
Marov, Yu. and A. Biryusov. Certain Results of the Falkland Crisis.....	5
Vladimirov, I. The Duty Doings of the U.S. "Intelligence Community".....	5
Goncharov, V. Civil defense and the U.S. Armed Forces.....	5
Aleksandrov, I. The Reverse of the Medal.....	5
Novik, N. Broadening the Area of Use of the NAVSTAR System.....	5
Perov, I. Washington's Nuclear Blackmail.....	6
Kuzin, L. Africa in Imperialism's Aggressive Plans.....	6
Dorokhov, P. South Korean Servicemen's Uniforms.....	6
Starov, N. Conventional Notation in Foreign Military Electronics.....	6
Levadov, L. and V. Viktorov. NATO Maneuvers and Exercises: Threat to Peace.....	7
Nikolaev, N. Great Britain: In the Channel of the U.S. Aggressive Course.....	7
Dzhuri, I. Religion at the Pentagon's Service.....	7
Yur'yev, A. The Armed Forces of the YuAR [Republic of South Africa].....	7
Andreykin, Yu. U.S. Military School in Latin America.....	7
Dmitriev, F. U.S. and NATO Precision Weapons.....	8
Krys'ko, V. The Trend of Psychological Training of Japan's Servicemen.....	8
Andreev, Yu. The Bundeswehr - NATO's Strike Force.....	9
Roshchupkin, V. Nuclear Ambitions of Reactionary Regimes.....	9
Anzherskiy, S. British Armed Forces.....	9
Uvayskiy, N. Psychological Operations in the Pentagon's Plans.....	9
Goncharov, V. NATO's Main Committee on the Preparation of Emergency Plans in the Civil Sector.....	9
Solov'ev, V. Japan: An Alliance of Monopolies and Militarists.....	10
Tsvetkov, A. Border Guard Forces of Several NATO Countries.....	10
Ivanov, A. The Facts Indict.....	10

Sedov, Yu. Lebanon: The Failure of the Aggressive Policies of Imperialism and Zionism.....	11
Cherneta, O. The Corps of Defenders of Iran's Islamic Revolution....	11
Aleksandrov, Yu. Italian Armed Forces.....	11
Cherkov, S. Lasers in Military Affairs.....	11
Ivanov, R. Micrography in the U.S. Armed Forces.....	11
Cherkov, S. Lasers in Military Affairs.....	12
Sokolov, D. Some Problems of Mathematical Modeling in the U.S. Armed Forces.....	12
Korablev, A. The CIA Against Africa.....	12
Zakharov, G. The Main Trends for Building Danish Armed Forces, 1985-1987.....	12
Stepanov, V. Providing Fuel for American Interventionist Forces....	12

## GROUND FORCES

Konstantinov, V. The FRG's Ground Forces.....	1
Burtsev, S. Improving Tank Mobility.....	1
Petrov, V. Improving Antitank Weapons.....	1
Simakov, A. The French Foreign Legion.....	1
Klenov, A. Exercise Farfadet-83.....	1
Filippov, V. The U.S. Armored Division.....	1
Lakhvin, V. U.S. Ground Forces Air Defense Units.....	2
Vasil'ev, A. French Ground Forces Field Artillery.....	2
Viktorov, Ye. Tank Cannon Ammunition.....	2
Fomich, N. Spanish Ground Forces Armament.....	2
Filippov, V. The U.S. Airborne Division.....	2
Yegorov, A. The U.S. Detached Armored Cavalry Regiment.....	3
Leonidov, N. Decontamination Equipment in the Armed Forces of Foreign States.....	3
Agliulin, S. and A. Ishkov. New Materials for Manufacturing Motor Vehicle Bodies.....	3
Yegorov, S. The U.S. Mechanized Division in the Offensive.....	4
Sashin, Yu. Dutch Ground Forces Motorized Infantry Brigade.....	4
Aleksandrov, I. Training Personnel of the U.S. Ground Forces for Night Combat Operations.....	4
Livanov, Ye. The French RITA Automated Communications System.....	4
Alekseyev, I. Training Recruits in the U.S. Army.....	4
Filippov, V. The U.S. Airborne Assault Division.....	4
Korolev, Yu. Engineer Support for a Divisional Offensive With the Crossing of a Water Obstacle.....	5
Morozov, Ye. Protective Equipment Against Chemical Weapons in the Spanish Ground Forces.....	5
Sergakov, L. U.S. Ground Forces Engineer Equipment.....	5
Sidorov, A. New American Motor Vehicles.....	5
Mishin, N. Fiber Optic Cables in Weapon Control Systems.....	5
To Help the Commander. French Tank, Paratroop and Alpine Companies..	5
Sergeyev, A. Mountain Combat Operations.....	6
Nelin, V. American AH-64A Apache Fire Support Helicopter.....	6
Chernov, S. American Vulcan Mining System.....	6
To Help the Commander. U.S. Tank, Mechanized Infantry and Infantry Companies.....	6

Volobuyev, V. and N. Nikolaev. The Air-Ground Operation [Battle]....	7
Gekov, V. Tank Power Plants.....	7
Viktorov, V. Multipurpose Missile System.....	7
Vanin, M. U.S. Army Training in Bayonet Combat.....	7
Simakov, A. French Armored Forces.....	8
Dymchinskiy, N. Employing Mortars in Combat.....	8
Yakovlev, L. The New British Tropospheric Communications Station....	8
Fomich, N. U.S. Armored Equipment.....	8
Dmitriev, O. FRG Territorial Forces.....	9
Andreev, G. and V. Nesterenko. YuAR [Republic of South Africa] Ground Forces Armament.....	9
Nelin, V. The New British Combat Helicopter.....	9
To Help the Commander. FRG Tank and Motorized Infantry Companies....	9
Filippov, V. Reorganization of U.S. Ground Forces Units.....	10
Konstantinov, V. FRG Ground Forces First School of Combat Forces....	10
Viktorov, Ye. The British CHALLENGER Tank.....	10
Stepanov, V. U.S. Technical Fuel Supply Resources.....	10
Egorov, A. U.S. Armored Division on the Offensive.....	11
Grishin, N. The SP-70 155-mm Self-Propelled Howitzer.....	11
Viktorov, V. A New Variant of the RAPIER Air Defense Missile.....	11
Nesterenko, V. The New Swedish PTRK [Antitank Missile System].....	11
Slobodenko, A. Deep Attack in the Modern Operation.....	12
Sergakov, L. Armored Engineer Vehicles.....	12
Litvinenko, V. and A. Miroshnikov. Employment of Technical Resources for the Security of Night Combat Operations.....	12
To Help the Commander. FRG Fighter-Antitank, Airborne and Alpine Companies.....	12
Tank Tactical and Technical Characteristics of Capitalist Countries' Armies.....	12

#### AIR FORCES

Kirillov, V. The Modern Fighter in Aerial Combat.....	1
Ivanov, B., and G. Isayev. Capitalist Countries' Multipurpose Fighters .....	1
Pavlov, V. American Multifunction Radars.....	1
Yurtsev, V. A New American Trainer Aircraft.....	1
Kirilov, V. Modern Interceptors in the Air Battle.....	2
Novik, N. Methods for Launching the Penguin-3 Missile.....	2
Ivanov, P. The French Mirage Aircraft.....	2
Rozanov, V. Development in the U. S. of the LANTIRN System.....	2
Dmitriyev, F. The U. S. Air Force 601st Control Wing.....	3
Belyayev, Yu. RC-135 Reconnaissance Aircraft.....	3
Karenin, I. Designations of Military Aviation Equipment Abroad.....	3
Dmitriyev, V. French Magic MK2 Air-to-Air Missile.....	3
Kondrat'yev, V. The Military Airlift Command of the U. S. Air Force.	4
Ivanov, P. Tests of American Experimental Fighter.....	4
Demin, V. A New Air-to-Air Guided Missile.....	4
Krasnov, A. Equipment and Tactics of Air Reconnaissance.....	5
Yurasov, L. Personnel Training System in the FRG Air Force.....	5
Alekseyev, Yu. The Air-Space Exhibit at Le Bourget.....	5

Viktorov, V. The Use of the Spada Antiaircraft Missile System for Defending Italian Air Force Airfields.....	5
Check Your Knowledge. Aircraft of the Capitalist Countries.....	5
Nikolayev, A. Thailand's Air Force.....	6
Yurasov, L. FRG Air Force 1st Technical School.....	6
Ivanov, B. Foreign Reconnaissance Aircraft.....	6
Dmitriyev, V. New Wasp Air-to-Surface Guided Missile.....	6
Luchko, G. New American Radios for Forward Air Controllers.....	6
Chistyakov, I. New Cartridges for the 30-mm Aircraft Guns.....	6
Myachkov, S. Organization of Air Force Coordination with Ground Forces.....	7
Prokhorov, P. The Swedish Air Force.....	7
Ivanov, B. Foreign Reconnaissance Aircraft.....	7
Pavlov, V. Modernization of Altair Radar.....	7
Novik N. Air Operations in the Anglo-Argentine Conflict.....	8
Utkin, V. Israel: Air Forces Development Plans.....	8
Konstantinov, L. Technical Servicing of the Tornado and Alfa Jet aircraft in the FRG.....	8
Mironov, I. American Pilotless Aircraft Pave Tiger.....	8
Viktorov, V. USA: On the Road to the Militarization of Space.....	8
Novik, N. Air Operations in the Anglo-Argentine Conflict.....	9
Shiryaev, P. Training Flight Personnel in the FRG Air Force.....	9
Nikol'skiy, U. F-15 Aircraft's Arming and Navigation System.....	9
Klochko, Yu. PAVE MOVER Radar.....	9
Yur'ev, F. NATO Air Force Units in the Northern European TVD.....	10
Kirsanov, V. Tests of the American Cruise Missiles in Canada.....	10
Pavlov, V.; Grishulin, S. Modernization of the NATO "NADGE" Air Defense Systems.....	10
Lakhvin, V. The Air Offensive Operation.....	11
Gavrilov, N. American Reconnaissance Satellites.....	11
Myachkov, S. FRG Air Force Low Level Attack Planes in the NATO Exercise "Adventure Express".....	11
Volin, V. Helicopters' Air Battles.....	12
Veselovskiy, G. The Exercise "Central Enterprise-84".....	12
Karenin, I. Aviation Ordnance for Striking Air Fields.....	12
Andreev, L. British Air Force Aircraft and Helicopter Wing Markings.....	12
Menshikov, M. Joint NATO Air Force Commander in the Baltic Straits Zone.....	12
Check Your Knowledge. Capitalist Countries' Aircraft.....	12

## NAVAL FORCES

Khomenskiy, V. Antisubmarine Warfare.....	1
Telezhnikov, A. U. S. Navy Advanced Officer Courses.....	1
Petrov, Yu. Ticonderoga-Class Guided Missile Cruisers.....	1
Nikolayenko, G. ASW Helicopters of the Swedish Navy.....	1
Test Your Knowledge: U. S. Naval Combatants.....	1
Korablev, A. The Influence of Weather Conditions on Combat Operations in the Baltic Sea.....	2
Mosalev, V. U. S. Navy Reconnaissance and Diversionary Units.....	2
Voroyskiy, F. French Navy Sonars.....	2

Grishin, N. West German Shipborne ZRK (Surface-to-air Missile System).....	2
Check Your Knowledge. British Naval Ships.....	2
Azarov, B.; Starov, M. Netherlands Shipborne Radar.....	2
Mar'in, V. Ships of Basic Types of the Italian Navy and Their External Characteristics .....	3
Stefanovich, A. U. S. Navy's Future Packet Radio Communications.....	3
Mel'nik, A. The FRG Navy in "Mine Warfare" in the Baltic Sea.....	4
Dobrotvorskiy, A. and E. Sanina. Providing the U.S. Air Force with Aerospace Hydrometeorological Information.....	4
Mochalov, R. Italian PLUTO Underwater Aparatus.....	4
Petrov, Yu. Ships' Combined and Gas Turbine Power Plants.....	4
Voroyskiy, F. Improvement of British Ships' EW Equipment.....	4
Malov, V. New Ships' Radar.....	4
Gavrilov, F. Maritime Transport Facilities for Supporting the Strategic Mobility of the U.S. Armed Forces.....	5
Ovsyannikov, V. and A. Kolpakov. Minelayers.....	5
Kutsev, I. An English Ship-based Early Warning Helicopter.....	5
Svetanin, G. A New American Shipboard Computer.....	5
Biryusov, A. Defense of NATO Atlantic Lines of Communications.....	6
Tarkhanov, I. and R. Sorokin. International Law of the Sea and Military Navigation.....	6
Tsiporukha, M. EVM [Electronic Computers] in the American Navy.....	6
Grechin, S. The Swedish Navy.....	7
Markov, A. The U.S. Coast Guard.....	7
Cheka, S. British Shipboard Communications System.....	7
Karelin, M. NV-10 Shipboard Navigation Equipment.....	7
Panin, M. Forward-Looking Infrared System in U.S. Navy Aircraft.....	7
Ivanov, A. U.S. Development of a System of Communications with SSBNs at Extremely Low Frequencies.....	7
Khomenskiy, V. NATO Navies in the Exercise TEAMWORK -84.....	8
Kutsev, I. Coast Guard Aircraft of the Main Capitalist Countries.....	8
Smirnov, A., A. Smirnov. Ballistic Missiles for Nuclear Submarines...	8
Mosalev, V. Reconnaissance in the Naval Landing Operation.....	9
Galkin, Yu. Training Privates and Non-Commissioned Officers in the British Navy.....	9
Markov, A. Information Display Devices in U.S. Navy Command Centers..	9
Vishnevskiy, A. The New Australian Tank Landing Ship Tobruk.....	9
Check Your Knowledge. French Naval Vessels.....	9
Afanas'ev, V. The New Dutch Guided-Missile Frigate.....	9
Chernov, V. The Trident Program in the Pentagon's Military Preparations.....	10
Poyarkov, B. Trends for the development of Shipboard ASU (Automatic Control Systems).....	10
Afanas'ev, V. Submarines of the NATO Navies.....	10
Khomenskiy, V. NATO's Strike Fleets.....	11
Smirnov, G., E. Lavrentev. American Shipboard Radars.....	11
Vladimirov, V., B. Tyurik. The British mineseeper-minehunter, Brecon .....	11
Afanasev, V. - The U.S. 7th Fleet.....	12
Vostrikov, V.; Volobuev, V. - Employing Anti-Ship Missiles.....	12

Vishnevskiy, A. - Landing Ships and Craft of Japan, South Korea and Taiwan.....	12
Mochalov, R. - Underwater Equipment for Combatting Mines.....	12
Yurin, Yu. - Japan's New Guided Missile Destroyer KHATAKADZE.....	12

## MILITARY ECONOMY

Vladimirov, B. and L. Nikolaev. Research and Production Programs For American Medium-Range Missiles.....	3
Volkov, A. The British Military Assistance Program.....	3
Vladimirov, I. Plan of the U.S. Military Budget for FY-1985.....	8
Katin, N. French "Military Aid" to African Countries.....	8
Mikhaylov, K. The System for Financing Military Preparations - Japan's Road to Further Militarization.....	9
Leonidov, I. U.S. Control over the Export of Strategic Materials and Technologies.....	10
Isaev, A. French Production Program for the Mirage-2000.....	10
Samarskiy, A. South Korea's Military Industry.....	11
Nikolaev, L.; Shengalev, O. - Programs for the Development and Production of Aviation Equipment in the USA.....	12

## INFRASTRUCTURE

Alekseev, A. The European Airfield Network of the Main NATO Countries.....	1
Tomin, S. Denmark (Physical-Geographical Conditions, State Structure, Economy, Infrastructure Elements, Armed Forces).....	2
Ivanov, V. Canada's Seaports.....	4
Kalgin, A. Seaports of the Countries of the arabian Peninsula.....	5
Mosalev, V. Diego Garcia Military Base.....	6
Fominskiy, N. NATO European Countries' Transportation System.....	7

## ANNOUNCEMENTS, EVENTS, FACTS

Exercise BOTANY BAY-83 of Joint Naval Forces. British Challenger Tank. New Aircraft in the British Air Force. French Super Puma Helicopter. New Assignments.....	1
Changes in the French Statute on Military Obligation. FRG Naval Exercise SEF-83/2. Italian Self-Propelled Howitzer. American Aircraft Radio Sets. The BK-117 Multipurpose Helicopter. New U.S. Navy Computer. The British Air Force Commander in the FRG.....	2
U.S. Bases Remain in Greece. French AMX-40 Tank. Production of Stinger Portable ZRK [Surface-to-Air Missile System] in NATO Countries. Joint Center for Training Tactical Fighter Pilots. French Submarine Simulator. New Appointments in the Turkish Armed Forces.....	3

Improvement of Italy's Coastal Defense. Spain's Military-Administrative Division. A New American Automobile. Personnel Training for the NATO AWACS Command. French Shipboard Air Defense Missile. Test Launches of the Harpoon from a B-52 Bomber. The New American Handgrenade. New Appointments.....4

Preparations for the LION HEART-84 Exercises. A French Artillery-Mine Emplacement System. The American Night Hawk Helicopter. The Swedish STINA Naval Command System. New Israeli Shipboard Air Defense Missile Described. The New NATO Secretary General.....5

FRG Naval Exercise SEF-84/1. France's Rapid Deployment Force. French Experimental PTRK [Antitank Guided Missile System]. Antiship Version of the Hawk aircraft. New Brazilian URO [Guided Missile] Frigate. Reassignments in the Turkish Armed Forces.....6

Changes in Turkish Military Law. Japanese "70" Self-Propelled Bridge Train. Modernization of The Turkish Air Force. Development of the FRG Air Defense System. Brazilian Drone. Broadsword-Class URO [Guided Missile] Frigates.....7

NATO Navies in the "Bright Horizon-84" Exercise. French Airmobile Anti-Tank Aviation. British Transportable ZRK (Anti-Air Missile Installation Javelin. The 155-mm Artillery Shell - Producer of Radio Interference. PARCS Radar Tracking Modes. Indonesian Guided-Missile Frigate. The New Swedish Shipboard Gun Mount.....8

NATO Naval Exercise "Deterrent Force-84". Militarization of the Falkland (Maldiv) Islands. Raising Spanish Ground Forces' Military Might. Reorganization of the French Armored Division. Reorganization of Japan's Naval Escort Forces. Renewal of Lamps-MK1 Helicopter Production. New Assignments.....9

NATO Joint Exercise Bold Guard-84. French Armored Cavalry Division. American Multi-purpose Fighter F-15E. Modernization of Norway's Air Defense Control System. American GWEN Communications System \* Containerized Mine Sweeping System. New Assignments.....10

Modernization of the U.S. Anti-Space Defense Control System. Improving the Effectiveness of camouflage Deception. U.S. Servicemen of Latin American Descent. Austrian Combat Engineer Tank. New Missile Combat Units. Spanish Helicopter Lynx-3.....11

NATO Navies' Electronic Countermeasures Groups. They Stengthen the Air Defense System. Japan's Armed Forces' Control Command Post. South Africa's Multiple-Launch Rocket System VALKIRI. The C-17 Military Transport Aircraft in the Pentagon's Plans. American Short Wave Transmitter. Teletype for the U.S. Air Force...12

# COLOR INSERTS

West German Gepard Twin 35-mm Self-Propelled Air Defense Mount * New British BAe-146 Military Transport * French AS332 Super Puma Helicopter * American Guided-Missile Cruiser Ticonderoga CG47.....	1
Spanish Amphibious Wheeled (6 x 6) BMR-699 Armored Transporter * Tornado Fighter-Bomber * Dutch Guided-Missile Frigate Kortenaer F807 * French Fighter-Bomber Mirage-3E.....	2
American RC-135U Reconnaissance Aircraft * French AMX-40 Tank * American Sergeant York M988 Twin 40-mm Self-Propelled Air Defense Mount * Italian Guided-Missile Frigate Maestrale F570.....	3
American Light Multipurpose Automobile HMMWV (Hummer) M966 * Hercules C-130 Medium Military Transport Aircraft * Foreign Aircraft Wing Markings * West German Missile Boat WIEHE P6157.....	4
The American M9 Engineer Vehicle * British Guided-Missile Frigate, BATTLEAXE F89 * The British SEA KIN HAEW-2 Ship-based Early Warning Helicopter * The French MIRAGE-2000 Tactical Fighter...	5
British HAWK Light Attack Aircraft * West German LUCHS Combat Reconnaissance Vehicle * American AH-64A APACHE Fire Support Helicopter * American Destroyer, COMTE de GRASSE DD974.....	6
Valkiri Multiple Launch Rocket System * French Mirage-F.1 GR Reconnaissance Aircraft * Swedish Viggen JA-37 Fighter- Interceptor * Swedish Submarine Najad.....	7
Light Wheeled Armored Vehicle LAV-25 * Japanese Amphibion US-1 SHIN MEIWA * Indonesian Guided-Missile Frigate NALA * American Fighter-Bomber F-16A Fighting FALCON.....	8
HARRIER Tactical Fighter with Vertical and Short Takeoff and Landing * West German Infantry Fighting Vehicle MARDER * Spanish multiple-Launch Rocket System TEREUL * Australian Tank Landing Ship TOBRUK L-50.....	9
British Main Battle Tank CHALLENGER * Foreign Air Force Wing Markings * The Japanese Air Force Tactical Fighter F-15J EAGLE * American Nuclear Missile Submarine SSBN-726 OHIO.....	10
The 155-mm Self-Propelled Howitzer SP70 * The British BRECON- Class Minesweeper-Minehunter, COTTESMORE M32 * The Antenna of the American Air Search Radar AN/SPC-52 * American Strategic Bomber B-52D STRATOFORTRESS.....	11
Inflight Refueling the Tactical Fighter TORNADO GR.1 * Tanks of the Capitalist Countries' Armies * French Wire-Guided Underwater Vehicle MIN.....	12

COPYRIGHT: Zarubezhnoye voennoye obozreniye, 1984

FOREIGN MILITARY AFFAIRS

CONTENTS: ZARUBEZHNOYE VOYENNOYE OBOZRENIYE NO 1, JANUARY 1985

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 1, Jan 85 (Signed to press 11 Jan 85) pp 1-2

/Full-text translated articles published in this issue of the JPRS report are indicated with an asterisk (\*)/

/Text/ CONTENTS	Page
*"The Homeland's Reliable Shield".....	3
GENERAL PROBLEMS, ARMED FORCES	
*"Western Europe: A Dangerous Course of Confrontation" - I. Vladimirov....	7
*"France's Armed Forces" - N. Frolov.....	11
*"The Financing of NATO's Military Preparations" - Ye. Nikolayenko and A. Vasil'yev.....	17
"The Iranian-Iraqi War" - I. Klenov and V. Orlov.....	22
"The Numerical Strength of the Armed Forces of Foreign States" - G. Petrukhin.....	28
GROUND FORCES	
*"Combat Operations in Jungles" - V. Dmitriyev.....	31
*"Modernization of Tanks in the NATO Nations" - B. Safonov.....	35
*"Antiaircraft Artillery Guns" - A. Tolin.....	41
"Development of the Combat Infantry Vehicle in Japan" - N. Fomich.....	48
"Effective Combat and Numerical Strength of NATO Nations' Ground Forces" - V. Titov.....	49
AIR FORCES	
*"Maneuvering in the Air Battle" - V. Petrov.....	53
*"Phased Antenna Arrays of Modern Radar Stations" - V. Pavlov and S. Grishulin.....	58
"Effective Combat Strength of NATO Nations' Air Forces" - V. Sibiryakov..	63
*"DOBAS-84 Exercise" - M. Men'shikov.....	69
"The Bundeswehr's Special Air Detachment" - S. Myachkov.....	70
NAVAL FORCES	
"The U.S. Marines" - R. Georgiyev.....	71
"The Use of U.S. Cargo Vessels for Military Purposes" - Yu. Mikhaylov....	79

	Page
"The New British Diesel Submarine" - V. Kipov.....	81
"The Effective Fighting Strength of the NATO Nations' Regular Naval Forces" - V. Afanas'yev and Yu. Kravchenko.....	83

#### REPORTS, EVENTS, FACTS

"SEV-83/4 Exercise of the FRG's Naval Forces" - "The Pentagon's 'Spiritual' First Aid" - "Improving the Training Base of American Forces in the FRG" - "The Brazilian Aircraft Carrier (Minas Gerais)" - "The ( Hatsuyuki) Class Guided Missile Destroyers" - "New Director General of Japan Defense Agency".....	91
---	----

FOREIGN MILITARY CHRONICLE.....	95
---------------------------------	----

#### COLORED INSERTS (unnumbered)

The French AMX-30B2 Tank

The American F-15 Eagle and F-16 Fighting Falcon Tactical Fighters

The Chinook-NS.1 Heavy Military Transport Helicopter of Great Britain's Navy

The Japanese DD126 (Hamayuki) Guided Missile Destroyer

COPYRIGHT: "Zarubezhnoye voyennoye obozreniye", 1985.

11499

CSO: 1801/166

FOREIGN MILITARY AFFAIRS

SOVIET ARMED FORCES PRAISED

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 1, Jan 85 (Signed to press 11 Jan 85) pp 3-6

[Article: "The Homeland's Reliable Shield"]

[Text] Our nation is advancing steadily toward new frontiers in social, economic and political development. The final year of the 11th Five-Year Plan has begun in a climate of great labor enthusiasm brought about by decisions adopted at the October 1984 Plenum of the CPSU Central Committee and at the 15 November 1984 session of the Politburo of the CPSU Central Committee, as well as by the proceedings of the second session of the USSR Supreme Soviet, 11th convocation. The urban and rural workers are filled with resolve to achieve new successes in the building of communism and in the fulfillment of the vast program of creativity outlined at the 26th CPSU Congress. The entire nation is preparing a fitting reception for the 27th party congress.

The approaching 40th anniversary of the Soviet people's Victory in the Great Patriotic War, a prominent political event in the life of all progressive mankind, is producing a powerful surge of political and labor activeness and of creative enthusiasm in the Soviet people, including the fightingmen in the Armed Forces. The decades which have gone by, states a resolution adopted by the CPSU Central Committee on the occasion of this date, have demonstrated the worldwide historical importance of this Victory even more clearly and completely. The defeat of German fascism and then Japanese militarism had the most profound effect on the entire course of world development.

The heroic feat performed by our valorous Armed Forces in defending the Soviet homeland's freedom and independence stands out even more clearly on the threshold of the glorious anniversary. For 67 years now, since February 1918, they have loyally served their people and the great cause of the Communist Party.

Creating the new type of army following the successful accomplishment of the Great October Socialist Revolution, V.I. Lenin stated that it must guard the conquests of the revolution, our popular power, the soviets of soldiers', workers' and peasants' deputies, and the entire new and truly democratic system against all enemies of the people. And our army has always fulfilled its historic mission, and continues to do so.

The Armed Forces have been tested in rigorous combat since the first days of their existence. The combined forces of international imperialism and internal counterrevolution attempted to stifle the young Soviet republic at any cost. In incredibly difficult conditions, the Communist Party organized a fitting rebuff for the enemy, guided by Lenin's statement that any revolution is only worth something if it is able to defend itself. Under its leadership, fightingmen of the Red Army, inadequately trained, poorly armed, poorly uniformed and frequently half-starved, but always filled with great revolutionary spirit and faith in the correctness of their cause, selflessly battled the well-armed troops of the interventionists and white guards, defeated them and defended the world's first socialist state of workers and peasants in battle. The operations carried out by the Red Army to route the forces of Kolchak, Denikin, Yudenich and Vrangeli, the fierce battles fought at Tsaritsyn, Petrograd and Kakhovka, the storming of Perekop and Volochayevka, and the great activeness, boldness and resolve reflected in the operations of the young republic's heroic defenders still evoke admiration in our friends and amazement in our foes.

The Communist Party's leadership of the nation's entire defense was a crucial factor in the victory achieved on the civil war fronts. Almost half of the party membership, around 300,000 of its members, were in the Armed Forces. The party Central Committee, which V.I. Lenin described as the party's combat element, constantly directed the work of the Republic's Revolutionary Military Council, the war department and the revolutionary military councils of the fronts and armies.

Our Armed Forces also surrounded their fighting colors with unfading glory during the Great Patriotic War, which was a gigantic military confrontation between socialism and imperialism's assault force and fascism, its most dismal and monstrous outgrowth. Not just years but decades now separate us from those historic events, and when we look at the Soviet people's feat and the invincible power of the Soviet Nation, they stand out more and more strikingly and grandly to the entire world.

The grandeur of that Victory is made all the more remarkable by the fact that the path to it was long and difficult. It took almost 4 years to travel and led through fierce and bloody battles and engagements, through unprecedented ordeals.

Exploiting its temporary advantages, the enemy succeeded in penetrating deep inside our nation at the beginning of the Great Patriotic War. Especially fierce engagements were fought near Moscow at the end of 1941, engagements which had a decisive impact on the subsequent course of the war. After exhausting and draining the enemy in difficult defensive battles, the Soviet troops forced it to switch to a defense for the first time in World War II and then launched the decisive offensive. Hitler's "Blitzkrieg" plan was laid to rest in those encounters.

Soviet forces began a new offensive in 1942 and routed the German fascist forces at Stalingrad. The battle at the walls of the Volga stronghold was the beginning of the mass expulsion of the invaders from our land. The following year, in the engagement on the Kursk salient, one of the most important stages on the path to our Great Victory, the Soviet Armed Forces broke the back of the fascist beast once and for all. In 1944 our army inflicted devastating strikes upon the enemy at Leningrad and Novgorod, in the Baltic area and Belorussia, in the Right-Bank

Ukraine and at Kishinev, and completely rid our nation's territory of the enemy. The offensive operations of 1945, enormous with respect to scale and results, culminated in the battle for Berlin. Having that battle, the Soviet Army routed a grouping of Hitlerite forces almost a million strong.

In the final phase of the war, the Armed Forces of the USSR performed the great international mission of liberating nations of Europe from fascist occupation. The peoples of Poland, Czechoslovakia, Yugoslavia, Bulgaria, Hungary, Romania and Albania were delivered from Hitlerite tyranny.

After enduring the difficult deprivations and trials of a war which lasted 1,418 days and nights, demonstrating selfless devotion to the homeland and unprecedented courage, steadfastness and heroism in the battles and engagements, a Soviet soldier raised the Red Banner of Victory above the defeated Reichstag. A few months later, the Soviet Army routed the million-strong Kwantung Army of imperialist Japan, which significantly hastened the end of World War II.

The Soviet Union's Victory in the Great Patriotic War fully revealed the advantages of socialism and its enormous economic, sociopolitical and spiritual possibilities. This was a victory of the Soviet State created by the great Lenin, the most advanced social order, and of the socialist economic system. It confirmed the powerful vital force of Marxist-Leninist ideology, the inviolability of the union of the working class, the kolkhoz peasantry and the laboring intelligentsia, and the friendship and fraternity of peoples of the USSR, and demonstrated the superiority of Soviet science and military art, the high level of strategic leadership and the combat skill of our military cadres.

The victory was selflessly forged at the front and in the rear area by Soviet people of all nationalities and occupations, by urban and rural workers, men and women, communists, Komsomol members and people who were not members of the party. With their tireless labor, kolkhoz and other workers, scientists and engineers, designers and technicians won the battle for meat and bread, fuel and raw materials, for the creation of powerful Soviet weapons and combat equipment. This was truly a feat of all the people. The profoundly just nature of the Soviet State's objectives and missions in the Great Patriotic War produced a high level of morale in the troops, partisan warfare on an unprecedented scale, and unprecedented labor enthusiasm in the nation's entire population.

The Victory, of worldwide historical importance, was produced by the entire Soviet people, by our entire army, and by the Communist Party, its soul, its inspirer and its organizer in the nation-wide struggle. It functioned wisely and vigorously in the Lenin manner and was truly a militant party, as it had been during the years of civil war. Its best forces were moved to the most dangerous and important sectors. More than half of its membership was in the field army. Every fourth Soviet fightingman was a member or candidate member of the party by the end of the war. The communists set an example for all the fightingmen, an example of courage, fearlessness and heroism, in the battle. Three million sons and daughters of the party gave their lives in battles fought for the homeland. Around 74 percent who were models of military valor and were awarded the title Hero of the Soviet Union for this, were communists.

The results of the Great Patriotic War convincingly demonstrated once again the fact that imperialism is not capable of halting socialist's advance, that there is no force in the world which could bring the great Soviet people to their knees. "Our nation does not plan to attack anyone," K.U. Chernenko, General Secretary of the CPSU Central Committee and Chairman of the Presidium of the USSR Supreme Soviet, has stated. "This is clear to every sensible person. We shall strengthen our defense capability, however, as we guard the peaceful labor of the Soviet people and defend the cause of peace throughout the world."

The Soviet Union's Victory in the Great Patriotic War marked the beginning of a new stage in the development of world history and created good situations for the achievement of victory for socialist revolutions in a number of European and Asian nations, for the development of the national liberation struggle and for further growth of the communist and workers' movement. The infamous colonial system had been destroyed once and for all. The commonwealth of socialist nations grew stronger and more united. The balance of power in the world began to change in favor of socialism and progress.

We have not known war for almost 40 years now. This is a great achievement for the Leninist policy of peace steadily conducted by our Communist Party, together with fraternal parties of the socialist nations. It is also a service of the Soviet Armed Forces, and invincible bulwark of universal peace and security of peoples, a powerful means of restraining the aggressive intrigues of the imperialists. The very existence of the powerful Soviet Army and Navy has a deterring effect on the fanciers of international discord and military adventures. And the fact that our nation is living, building and developing in peace, the fact that we have built a society of developed socialism and are now accomplishing the huge tasks involved in creating the technical and material base for communism--the Soviet Armed Forces, which are guarding the peaceful labor and providing a reliable shield for the socialist homeland, for all the forces of peace and progress on earth, have made an indisputable contribution to all of this. Fulfilling their international duty, fightingmen from our army are assisting the Afghan people in the just struggle against the intrigues of imperialism and internal reaction.

We do not need war. Peace is essential for the building of communism. Leading circles of the USA and the imperialist NATO bloc reason differently, however. They are counting on direct confrontation with the USSR and the other socialist nations, and with the forces of the national liberation movement, using political, military, economic and psychological means. The course taken by Washington in its international policy is essentially a "crusade" against communism and exacerbation of the confrontation with the USSR and other socialist nations. The Pentagon has openly proclaimed strategic concepts which actually accept the "possibility" and the "admissibility" of a nuclear war, specially on the European Continent, and its strategists are working out scenarios for a "preemptive" nuclear strike.

The attempt by reactionary imperialist circles of the USA to destroy the strategic military balance in the world is becoming increasingly dangerous. They are implementing expensive programs for building up their strategic offensive forces in order to achieve military superiority. The United States is developing qualitatively new weapons systems, including the MX, Trident-2 and Midgetman

ballistic missiles, and antimissile defense systems in space. Control, communication and reconnaissance systems designed for conducting combat operations in a nuclear war are undergoing technical modernization. The deployment of new first-strike missiles in Western Europe continues. The conventional arms race (the "Rogers Plan") is also being intensified in the NATO nations.

Washington's outlays for militaristic purposes have increased drastically. Just since the war, the USA has spent the astronomical sum of more than 2.5 trillion dollars on the arms race, 1.7 trillion of which has been spent during the past decade. Planned military outlays for fiscal year 1985 amount to more than 300 billion dollars. The insatiable Molech of war is swallowing up colossal amounts, and the situation in the world is growing more and more tense through the evil will of imperialist circles.

In this situation, the Armed Forces of the USSR maintain a state of constant combat readiness, exercise great vigilance and keep close watch over the intrigues of the foes of peace and progress. The organization of the socialist homeland's defense today rests on the great economic, scientific and technical capability and on the monolithic moral-political unity of the Soviet society. The party foresaw and correctly assessed the main directions for scientific and technological progress. The successes were promptly put to use for strengthening the nation's defense. This made it possible to rapidly create the nuclear missile shield which covers our borders and to lift all the services of the Armed Forces and branches of troops up to a new level. All of the elements making up the Soviet State's defensive strength are reflected in concentrated form in the qualitative definition of the army and in its fighting capability, which consists of a solid alloy of a high level of technical equipment, combat skill and invincible morale.

The complexity and importance of the tasks now being performed by the Armed Forces are steadily increasing the Communist Party's role in the supervision of military organizational development. Creatively developing Lenin's doctrine on the defense of the socialist homeland and taking into account accumulated experience, the latest achievements of science and technology and the specifics of the contemporary international situation, the CPSU is working out pressing problems of military theory and praxis, defining the technical military policy, perfecting the organization and structure of the forces, their technical equipment and methods of controlling them, and the training, indoctrination and distribution of the military cadres, taking steps to make the ideological and political indoctrination of the fightingmen more effective, and striving to increase the indoctrinational role of the army and navy. There is not a single area of military affairs in which the guiding and mobilizing role of the CPSU, its Lenin Central Committee and Politburo of the Central Committee, headed by Comrade K.U. Chernenko, is not manifested.

In response to the concern of the party and the Soviet people, personnel of the army and navy are persistently mastering the most effective techniques and methods of conducting combat operations on land, in the air and at sea. This is convincingly demonstrated by last year's results. The vast majority of the military collectives have advanced markedly in their combat development. The units which initiated the campaign for good results in the combat and political training have successfully fulfilled their commitments. The railway troops building the BAM

have made a great contribution. It was in great part due to their selfless labor that the BAM was opened to train traffic over its entire length ahead of schedule.

The Soviet Armed Forces are performing their historical mission of protecting socialism and peace in single combat formation with the armies of the socialist states belonging to the Warsaw Pact, which will be 30 years old this year. The fraternal military alliance is growing stronger and more united. The Soyuz-84 and Shchit-84 joint exercises held last year demonstrated once again the high degree of interaction and combat training which exists among the fraternal armies and their ability to perform difficult missions in modern combat. They convincingly confirmed the fact that the friendship, solidarity and unity of the fraternal armies provide a reliable means of restraining any aggressor.

Fightingmen of the Soviet Armed Forces, who are preserving and adding to the glorious revolutionary, combat and labor traditions of their people and who have been indoctrinated by the Communist Party in a spirit of Marxism-Leninism, communist conviction and unshakeable loyalty to their military oath, hold high their fighting colors covered with glory. They are honorably fulfilling their constitutional duty and doing everything necessary to see that no intrigues by imperialism's aggressive forces and their accomplices are able to prevent our nation's advance along the path of building communism.

COPYRIGHT: "Zarubezhnoye voyennoye obozreniye", 1985.

11499

CSO: 1801/166

FOREIGN MILITARY AFFAIRS

WESTERN EUROPE'S CONFRONTATION COURSE ASSAILED

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 1, Jan 85 (Signed to press 11 Jan 85) pp 7-11

[Article by Col I. Vladimirov, candidate of historical sciences: "Western Europe: A Dangerous Course of Confrontation"; passages enclosed in slantlines printed in boldface]

[Text] There have been numerous pieces of evidence in recent years which irrefutably confirm the obvious and indisputable fact that the development of events in Europe has become especially dangerous as a result of the militaristic activities of the USA and NATO. There is every basis for the concern over the serious situation which has developed on the continent through the fault of those who, despite the desires of their own peoples, have openly set out on a course of military confrontation with socialism. For a long time now imperialism has been directing its efforts against detente, attempting to undermine the only reasonable basis for relations between states with different social systems--peaceful coexistence. As a result of a number of actions taken by the USA and its allies in the North Atlantic bloc, considerable harm has been done to the policy of detente. Substituting confrontation for cooperation, the NATO nations have taken the arms race into a qualitatively new and extremely dangerous phase, one which embraces all types of weapons, both nuclear and conventional.

The material preparations for war being made by imperialism on the most modern technical basis and using the latest scientific achievements are most vividly manifested in Western Europe. The deployment of American medium-range nuclear weapons--Pershing II and cruise missiles--eloquently illustrates this process.

The appearance of these first-strike weapons in Europe created a fundamentally new situation there. The nuclear confrontation was exacerbated drastically, and the risk of war was increased. When it set out on that dangerous path, the USA destroyed the military parity and created an additional nuclear threat to the USSR and its allies. The nuclear parity is being restored as a result of steps taken by the Soviet Union, but at a higher level. The number of nuclear warheads aimed at one another's targets on the two sides has increased, the amount of time available for making a decision in response to a nuclear attack or a deliberately created nuclear situation has been drastically reduced, and trust between the states has been undermined. In other words, the likelihood of a nuclear conflict has increased as a result of the deployment of American first-strike missiles in Europe.

Assertions by the proponents of NATO's "missile rearmament" that peace in Europe has become more secure with the American missiles are a cynical distortion of the true situation. On the contrary, the security of the European peoples is becoming less and less stable with each new American missile put into operational readiness. The Western press openly expresses doubt that the Pentagon will be contented with what has been achieved, however. The possibility is not ruled out that the USA intends to deploy far more missiles in Western Europe than specified in the decision adopted at the December 1979 session of the NATO Council. As the West German press has pointed out, the plans of the United States to produce a total of 380 Pershing II missiles is irrefutable proof of the fact that the true scale of the "rearmament" will not become known for several years. According to some reports in the foreign press, the USA plans to have three or four missiles for each launcher for the Pershing II guided missile.

The deployment of "Eurostrategic missiles" is only the first step on the path to the longed-for goal of achieving military superiority over the socialist commonwealth states. At the same time, the American leaders have raised the question of building up the non-nuclear capabilities of the NATO nations. The USA has stockpiled new chemical weapons in a number of states and wants to turn Western Europe into a gigantic gas chamber. The Reagan Administration is also attempting to draw its allies in the bloc into the implementation of its aggressive plans for militarizing outer space. The American leaders are already thinking about "creating a few bases in Western Europe" as part of a program for deploying a large-scale antimissile defense system with space-based elements.

Blindly following their oversea partner on the course of confrontation, the Western European nations of the North Atlantic bloc have obediently supported at meetings of the bloc's military agencies, decisions worked out in Washington on building up the armed forces and armaments during the years 1985-1990 and forcing the projects for 11 types of latest weapons, particularly electronic means of warfare and laser weapons, and on increasing military outlays and the designation of new allocations for modernizing NATO's infrastructure. Having been turned into a nuclear hostage of the United States, Western Europe has found itself securely bound to the militaristic course of the USA and the aggressive aims of its military doctrine, and has practically been deprived of its independence in security matters.

What is occurring at the present time in Western Europe is directly contrary to the peaceful aspirations of its peoples. And those who opened the door to American missiles, who were the first to make their territory available for the deployment of new types of weapons of mass destruction and who placed their stakes on the destabilization of international relations bear particular responsibility for this.

The following fact draws our attention in the complex military-political situation which is developing on our continent. The role of NATO's main striking force in Western Europe has been assigned to /the Federal Republic of Germany/, which is becoming the staging area for preparing and committing aggression against the USSR and its allies. Let us recall the slogan advanced by Chancellor H. Kohl during the 1983 election campaign for the Bundestag: "Peace with fewer weapons."

And what actually happened? The resounding words have long been abandoned to oblivion, while the nation's militarization, which had reached a dangerous level long before, was given new impetus. West Germany is literally crammed with missiles and nuclear weapons, but the nation's most reactionary circles are fighting for an increase in the supply.

The Bundeswehr is already the most powerful army in Western Europe, surpassing the other Western European NATO nations with respect to numbers of personnel, tanks and aircraft. The FRG's armed forces account for 50 percent of the total strength of ground forces in NATO's Joint Armed Forces in the Central European Theater of Operations, 50 percent of the air defense ground weapons, 30 percent of the total number of combat aircraft, 100 percent of the aircraft in the Joint Naval Forces and 70 percent of the seagoing personnel in the zone of the Baltic Straits. Mobilization could increase the numerical strength of the Bundeswehr to 1.2 million men within a period of 72 hours. The nation's military budget has increased by 3 percent in real terms over the past 10 years, and it has now reached almost 60 billion marks.

It would appear to be time to stop. After all, a level meeting any sort of defense needs has long been surpassed. The conservative-liberal coalition, however, which members of the Green Party describe as "submitting with the readiness of a vassal" to the militaristic course of the USA, is continuing to accelerate the arms race. The West German press reports that it is planned to allocate truly astronomical amounts to further build up the Bundeswehr's military might. It is planned to spend 132 billion marks--200 billion with inflation--on purchases of military equipment and NIOKR [scientific research and experimental design work] during the period 1985 to 1990 alone. It is planned to purchase almost 11,000 missiles of various types. Chancellor H. Kohl once assured its overjoyed ally of its resolve to deploy medium-range American missiles in the FRG, even if this meant that its residents would have to view their eastern neighbors through "a forest of missiles." The first Pershings have barely appeared on West German land, but the Kohl-Genscher Government is once again demonstrating its servility with respect to missiles, having signed an agreement with the USA on the purchase of Patriot antiaircraft missile systems. It would appear that instead of a "forest of missiles," it is planned in Bonn to erect a solid wall of them. Not "peace with fewer weapons," but "war with more missile"--this is the slogan which conforms to the nature of the military policy of West Germany's current leaders.

It is not surprising that in the "anything goes" militaristic climate created in the /FRG/ by the ruling coalition of the Christian Democratic Union and Christian Social Union-Free Democratic Party, the West German revanchists have once again reared their head. Bonn's following of the "crusaders" from Washington in the wake of the confrontation policy has become fertile soil in which various revanchist groups can step up their subversive activities. They could not but be inspired by the government's turn to the right and its return to the aims of the "Adenauer era," including reconsideration of the results of World War II, as well as by the political and moral support of official circles. Prominent members of the FRG's military-political leadership, including the president of the republic, are now participating in the provocative assemblages of revanchist organizations.

Certain ministers openly call for a new look at the existing borders and Germany's restoration to the 1937 borders. Deliberately fomenting revanchist sentiments is

persistently declaring that the "German question" remains open, the authorities demonstratively assure those whom the political map of Europe does not suit that they understand the latter's interests. It is not without reason that the revanchists state with pride: "The federal government headed by Chancellor H. Kohl is our government." Under his protection, the revanchists have come to feel that they are the agents of state policy.

The claims to foreign territory are becoming especially ominous in light of the support given the revanchist longings by the bloc's leadership. A declaration adopted at a meeting of the NATO Council in Washington in May 1984 states that the North Atlantic alliance "supports the Federal Republic of Germany's political goal of establishing a peaceful state in Europe in which the German people would regain their unity as a result of free self-determination." Behind the cover of fine-sounding words about peace and freedom, they are actually talking about NATO's support of the claims of ruling circles in the FRG to the sovereignty of the GDR. The entire system of agreements aimed at assuring stability on the continent and calling for absolute respect for the territorial and political realities of Europe today has been called into question.

The continuing militarization of the nation and the encouragement of revanchist sentiments are producing a situation in which the threat of war is once again emanating from German land. The decision to lift from the FRG the last restrictions on the production of conventional offensive weapons, including strategic bombers and long-range missiles, which was adopted by the Council of the West European Union (WEU) at West Germany's insistence at the end of June 1984, is further proof of those dangerous trends.

The nature of the step, which is fraught with the danger of serious consequences, is obvious. A memorandum from the Soviet Government to the Government of West Germany states that "the FRG is being given the opportunity to develop and deploy its own long-range offensive weapons, which are capable of threatening the security not just of neighboring states, but of states far removed from the FRG." Closing their eyes to this fact, however, certain circles in the West even advocate permitting the West German militarists to have nuclear weapons. The newspaper FIGARO, mouthpiece of the right-wing French, openly calls for placing French neutron weapons and the Hades operational and tactical missiles under development at the disposal of the Bundeswehr. These ideas were met with approval on the banks of the Rhein. A specific plan for acquainting the FRG with nuclear weapons has already been set forth in Bonn, which calls for setting up within the West European Union a special agency, a European Council on Nuclear Defense, with West Germany's participation. Its main tasks would consist of selecting the targets and adopting decisions on the use of nuclear weapons.

/Great Britain/ with its orientation toward the United States, is following a course of military preparations and approving many of Washington's militaristic initiatives.

Hiding behind the false assertion that the USSR has a military superiority, the Conservatives have increased the nation's military outlays almost 2-fold during the years of their rule (since 1979). They exceed 18 billion pounds sterling. This means that Great Britain will retain its lead over the other West European NATO nations with respect to military outlays, both in absolute terms and per capita.

A considerable portion of these allocations are designated for modernizing the nuclear arsenal, and primarily for re-equipping the British strategic forces with new ballistic missile submarines armed with American Trident-II ballistic missiles. According to reports in the foreign press, the commissioning of the new submarines, which is planned for the 90's, will increase Great Britain's strategic forces to 896 nuclear warheads (there are now 192).

Plans are simultaneously being worked out for reorganizing the Ministry of Defense and for other structural reforms to build up the striking capability of the British armed forces.

The fact that London has placed its stakes on strengthening the nation's strategic nuclear capability has been properly appreciated in Washington, which has proposed to the British government that Minuteman ballistic missiles armed with conventional warheads be deployed on the British Isles. A valid question arises: Why did the USA come out with such an extremely irresponsible initiative in general? After all, it is well known that the Minuteman-II and -III missiles, which are the foundation of the American strategic offensive forces are first-strike weapons and that their appearance in Europe would indicate a drastic exacerbation of the nuclear confrontation. There can be only one answer--to get strategic missiles into Europe behind the medium-range missiles and attempt to fundamentally alter strategic parity in its favor.

Quite recently, however, new elements have appeared in the policy of the British Government, which is concerned about the danger to Western Europe of the foreign policy course conducted by the Reagan Administration. Among other things, it has spoken out against Washington's attempts to extend the arms race to outer space. A strengthening of such trends in London's policy would undoubtedly help to improve the international situation and would be in keeping with the interests of all peoples.

Major changes have occurred in /France's/ military-political course in recent years. As Comrade K.U. Chernenko, General Secretary of the CPSU Central Committee and Chairman of the Presidium of the USSR Supreme Soviet, has stated, "we do not place an equal sign between France and those nations which are deploying American missiles on their territory. Those governments which, while not accepting American missiles in their nations, have actively supported plans for their deployment, also bear a certain amount of responsibility." In this respect, the French leadership has gone further than many West European governments by recognizing as legitimate the USA's false conclusions about a so-called disturbance of the military parity in Europe in favor of the USSR. The Soviet Union is openly named as the enemy for the first time in the military program approved by France for the period 1984-1988. The position of open adherence to the course of NATO's "additional armament", which has been adopted by that nation, is accompanied by efforts to sharply increase its own nuclear missile capability.

It is planned to significantly increase the nuclear striking power. A sixth nuclear-powered, missile-carrying submarine is undergoing sea trials. Preparatory work is underway for the construction of a seventh ballistic missile submarine, which is to be commissioned in 1994. It is planned to replace the sea-based, single-stage nuclear missiles with missiles carrying multiple warheads. The testing of a neutron weapon has been completed.

In the American image, it is creating its own "rapid deployment forces," designated for transfer to "forward lines" in the FRG in case a critical situation should develop, and for conducting combat operations jointly with groupings of NATO's Joint Armed Forces. In addition, the events in Chad have shown that they can be used on other continents as well, primarily in areas of France's traditional interests. The creation of these forces is raising the nation's cooperation with the bloc's military organization to a new level. We can see a clear departure from the independent policy which for many years helped to strengthen France's prestige in the international arena.

Notice that it was France which initiated the strengthening of "European defense" by revitalizing the West European Union. The goal is to turn it into "a real European buttress for NATO" and to increase the contribution made by nations in the region to the military preparations of the West. The possibility is not ruled out that France's initiative on the lifting of the last restrictions on the production of offensive weapons from the FRG is a sort of payment to Bonn for supporting the plans of its government for creating a "European defense" system.

The nation's leaders feel that this system should be based on close French-West German cooperation. Military ties between the two states, which were "dead" for more than 20 years, have now taken a turn. Bilateral, high-level meetings have now become a regular thing. A special permanent commission has been set up to study various military problems, including questions of joint military and economic cooperation. The French press notes that France and the FRG are planning a total of around 30 joint projects for development and production of weapons.

The United States is attempting to exploit the idea of vitalizing the West European Alliance and French-West German military ties in its own interest. Having gotten the NATO bloc to adopt the decision on "additional armament," the American leadership conceived the idea of eliminating the next "lag"--this time in the area of conventional weapons. The goal is to achieve indisputable superiority over the Warsaw Pact states in conventional means of armed conflict. This is precisely the point of the "Rogers Plan." Reagan stated in an interview for the newspaper FIGARO, "American is not in a position to accomplish this task alone, and it is very important for all of its NATO partners to do everything they can to enhance the fighting efficiency of their armed forces." It is becoming apparent that this project, like the plans for strengthening "NATO's European support," are links in a single chain, components of the general line of increasing tensions in Europe.

A perceptible growth of militaristic activity is also to be seen in other nations of the North Atlantic bloc, especially on its flanks. Constant pressure is being applied to them to force them to engage in even more vigorous military preparations and to serve as advantageous staging areas in immediate proximity to the Soviet Union. It is clearly to please their overseas partner that ruling circles of Norway, Italy and Turkey are increasing military outlays and adopting more and more new decisions which give the NATO military clique even greater access to their territories. Realization of the plan insisted upon by the Pentagon for deploying Pershing II guided missiles and cruise missiles in Turkey and cruise missiles carrying conventional warheads in Norway, Denmark and Iceland could have specially dangerous consequences.

Indulging Washington in its aggressive designs thoroughly conflicts with the aspirations of Europe's peoples. The arms race launched by the West European nations to suit the USA is taking the world toward a fateful point. Personnel of the Soviet Armed Forces are faced with even more important tasks in the situation of increased danger of war for our nation. The main one is to tirelessly concern themselves with further enhancing the preparedness of the army and navy to repel aggression, no matter where it originates. They also include the exercising of great vigilance by all the fighting men and an even greater exertion of effort in the combat and political training and in the strengthening of military discipline.

COPYRIGHT: "Zarubezhnoye voyennoye obozreniye", 1985.

11499

CS0: 1801/166

## FOREIGN MILITARY AFFAIRS

### FRANCE'S ARMED FORCES DESCRIBED

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 1, Jan 85 (Signed to press 11 Jan 85) pp 11-17

[Article by Col N. Frolov: "France's Armed Forces"; passages enclosed in slantlines printed in boldface]

[Text] France pulled out of the NATO military organization in 1966 but remained a member of that bloc's political institutions. France's cooperation with its members continues to develop on the basis of bilateral agreements. It is reflected in the coordination of plans for the possible use of armed forces, the conducting of military exercises and maneuvers, and the joint development and production of weapons and military equipment, as well as in the use of facilities within France which are a part of its infrastructure (training fields, ranges, depots, pipelines and so forth). Plans for the reorganization and technical re-equipment of the French military forces are objectively contributing to the build-up of the aggressive NATO bloc's military strength. France's military outlays are increasing every year. They grew by 60 percent during the past 5 years, for example, reaching the unprecedented sum of more than 170 billion francs in 1984.

The French military-political leaders constantly stress the fact that the nation is still a member of NATO's political organization and intends to fulfill the commitments it has accepted, including the use of its armed forces jointly with that bloc's Joint Armed Forces (OVS) in case of war.

The activities of the Joint Armed Forces are taken into account for planning and performing the combat training of the French troops and naval forces. More than 20 exercises are conducted each year in accordance with NATO plans or jointly with the armed forces of individual member nations. France is working jointly with the USA, the FRG, Great Britain and other bloc states in the development and production of aircraft equipment (the Jaguar, Alpha jet and Transall planes and the Gazelle, Puma, Lynx and RAN-II helicopters), the MLRS multiple launch rocket systems, the Roland and Patriot antiaircraft missile systems, the Hot and Milan antitank guided missiles, and other weapons and military equipment. France is developing or producing around 30 weapons models together with other member nations. It is continuing its cooperation within NATO's Joint Air Defense System in Europe (the control centers for the French national system for transmitting information on the air situation, (Strida), are linked with the NADGE automated system for controlling NATO's air defense forces, the control and communication

systems are linked with the corresponding NATO systems, and the communication systems and lines of the French 2nd Army Corp, stationed in the FRG, are linked to the Bundeswehr's communication networks. Combat aircraft of nations in the North Atlantic alliance, including aircraft of the U.S. Strategic Air Force, constantly use France's airspace. American and West German fighting ships regularly visit France's naval bases and basing sites of its naval forces for technical maintenance, repair and replenishment of materials and equipment supplies. There are French military missions at the bloc's headquarters.

In recent years, pro-Atlantic trends have been clearly visible in the policy conducted by the French military-political leadership. This is borne out by the extent of France's cooperation with NATO in the military area, which is evoking satisfaction in militarists of the USA and in the leadership of the North Atlantic alliance. France's government supports American plans for deploying new medium-range missiles in Western Europe and is endeavoring to build up its own nuclear missile capability, including the development of neutron weapons.

The plan for organizational development of the nation's armed forces for the period 1984-1988 calls for substantially enhancing the combat capabilities of formations and units of all the services and for raising their fighting strength to a higher level.

France's armed forces consist of ground forces, air and naval forces and paramilitary police. Their combined numerical strength was 566,000 men at the end of 1984, including 85,000 members of the paramilitary police.

According to operational and strategic purpose, they are divided up into strategic and tactical nuclear forces, and general purpose forces. The first group includes three elements: medium-range Mirage-4A bombers, medium-range ballistic missiles (in the air forces) and nuclear-powered missile submarines. The tactical nuclear forces include five regiments of Pluton guided missiles (ground forces), five squadrons of Mirage-3E and Jaguar-A fighter-bombers (air forces), and 36 Super Etendard carrier aircraft (naval forces). The general purpose forces include the other formations and units of all branches of the armed forces.

The nation's territory has been divided up into six military districts, which are made up of zones (a total of 22), for purposes of conducting conscriptions and mobilization measures, deploying and supplying the troops, and organizing the combat training for formations and units stationed in specific zones.

/The highest military control agencies/: the president of the republic is the commander in chief of the armed forces. He directs them through a Defense Committee, a Higher Defense Council, a prime minister and a minister of defense. The Defense Committee is the highest political body under the president. It makes decisions on the main questions of military organizational development and coordinates the work of various ministries and departments for preparing the nation for war, and with the outbreak of a war, it heads the state's government and armed forces.

The Supreme Defense Council is a consultative body under the president. Its main mission is one of working out draft legislation in the area of military policy and organizational development of the armed forces.

The prime minister coordinates the activities of the ministries and departments in military matters and is responsible for implementing the decisions. His working organ is the General Secretariat for National Defense. The minister of defense (a civilian) is responsible for the state and combat readiness of the troops and naval forces and for implementing plans for their organizational development and technical re-equipment. He directs them through the staffs of the armed forces and of the individual branches. The minister of defense has the following consultative agencies: supreme military councils of the ground forces, air forces and navy for the combat employment and organizational development of the branches of armed forces, as well as for conferring the top military ranks and appointing people to responsible positions.

The chief of staff of the armed forces exercises direct leadership of the troops and naval forces in peacetime through the chiefs of staff of the branches of armed forces, who are actually the commanders. In time of war he designates a chief of general staff, and the chiefs of staff of the branches of armed forces become his deputies.

The chiefs of staff (commanders) of the branches of armed forces are responsible for their combat and mobilization readiness, for working out plans for the operational use of the formations and groupings, for organizing and conducting the training of the personnel, for material and technical support of the troops and naval forces and for the implementation of plans for their organizational development.

France's /ground forces/ are numerically the largest branch of the armed forces (312,000 men). Their most battleworthy formations and units have been combined into the First Army and the "rapid deployment forces" (RDF) command. This army includes three army corps (First, Second and Third), which have different types of organization, and the Rapid Deployment Forces include five divisions and various support and service units and subunits. The commanders of the 1st Army and the RDF are operationally subordinate to the chief of staff of the armed forces and administratively, to the chief of staff of the ground forces.

France's armed forces include the Foreign Legion, which performs policing functions in various parts of the world, especially in Africa.\* Its units and formations are administratively subordinate to the commanders of the corresponding formations or the commanders of the military districts of which they are a part.

The 1st Army is designated for performing combat missions in the European theaters of military operations, both independently and as part of NATO's Joint Armed Forces or interacting closely with them, while the command element of the RDF can also perform missions for France outside a European theater of war.

According to foreign press reports, the 1st Army is a force of nonpermanent composition, designated for participating in an operation (or battle) on a strategically important axis within the theater of military operations, independently or as part of an army group (when engaging in combat operations jointly with NATO allies). The number of formations in it will depend on the mission assigned to it and the nature of the enemy's actions, as well as on the specific features of the area of combat operations.

\*For a more detailed discussion of the Foreign Legion see ZARUBEZHNOYE VOYENNOYE OBOZRENIYE, No 1, pp 42-44.--Editor

The ground forces include a total of 13 battle-ready divisions (seven armored, two infantry, one infantry "marine," one mountain infantry, one airborne landing and one armored division) and two training infantry divisions. In addition, the ground forces have separate units and subunits of central (the high command's reserve) and district subordination. The former include antiaircraft missile, armored (reconnaissance), engineer, signal, army air, transport and other regiments.

Forces located within the territory of a military district but not a part of the army corps or the RDF are subordinate to the commander of the military district. Depending upon the situation, they can perform missions independently (in accordance with plans of the supreme command) or may be turned over to the army corps.

The foreign press reports that at the end of 1984, France's ground forces had more than 40 launchers for the Pluton guided missiles, around 100 AMX-30 (Figure 1 [photographs not reproduced]), AMX-30B2 and AMX-13 tanks, approximately 500 105mm and 155mm field artillery guns, as many as 500 120mm mortars, more than 1500 Milan, Entac and SS-11 antitank missile systems, around 3,000 armored vehicles (AMX-10RC, -P and -PC, Panar, VAB, Figure 2, AML and AMX-13VTT), and around 700 planes and helicopters of the army aviation. The antiaircraft weapons are Roland antiaircraft missile systems (more than 120 launcher), the Improved Hawk (70), 20mm and 30mm guns (more than 600).

The army corps is the highest tactical formation of ground forces. The army corps are organized variously. The 1st Artillery Corps, for example, includes three armored divisions, an infantry and a training infantry division (the 6th Armored Division, which was formerly a part, was disbanded in mid-1984) the 2nd Artillery Corps includes three armored divisions, and the 3rd Armored Corps includes an armored division, an infantry and an infantry training division. In addition to the divisions, each army corps has a directorate (a staff and chief of the arms of troops and services) and the following regiments: a motorized infantry regiment, one or two armored regiments, one or two Pluton guided missile regiments, two artillery regiments, one or two Improved Hawk and Roland antiaircraft guided missile regiments, a signal regiment, an engineer and two army air regiments, as well as other units and subunits. The army corps is the main element, which organizes and provides material and technical support for the troops. All of its rear service units and subunits are combined into a rear service brigade.

The Rapid Deployment Force (headquartered at Saint-Germain-en-Laye) began to be formed in 1983. It will include five divisions: an armored, an airborne, an infantry "marine" and a mountain infantry division, as well as an air-mobile division, which is now being formed. When the RDF is complete, it is to include around 47,000 men and have up to 300 helicopters for various purposes, around 280 mortars, more than 500 antitank guided missile launchers, as many as 180 combat reconnaissance vehicles, more than 500 armored personnel carriers, and other weapons and transport equipment.

The reorganization of the ground forces is presently continuing in accordance with the 1984-88 Programme law for the organizational development of the armed forces.

The 1st Army will continue to include three army corps. The 1st Army Corps (Central) is to include four divisions (two armored, an infantry and a training infantry division), the 2nd (Eastern) is to have three armored divisions, and the 3rd (Northern) will have three divisions (an armored, an infantry and a training infantry division).

According to the plans, the ground forces will receive the following during the period 1984-1988: 500 AMX-30B2 tanks (see colored insert), around 150 155mm guns, 100 Milan antitank guided missile launchers, as many as 70 Roland antiaircraft guided missile launchers, approximately 1700 combat infantry vehicles and armored personnel carriers, and around 50 helicopters.

A new guided missile, the Ades, with a firing range of 350-400 kilometers and a payload of 80 kilotons, is being developed to replace the Pluton operational and tactical missile, which has a firing range of up to 120 kilometers and a payload of 10 and 25 kilotons. It is to be received by the forces at the beginning of the 90's. It is planned to combine the Ades guided missile regiments into an operational-tactical missile division, which, along with subunits of carrier aircraft of the air forces and naval aviation, will become a part of the tactical nuclear forces, subordinate directly to the chief of staff of the armed forces.

In the opinion of French military experts, the reorganization and technical re-equipment of the ground forces will significantly enhance their combat capability. When the reorganization of France's ground forces has been completed, they will number 13 divisions (six armored, two infantry, an infantry "marine," an air-mobile, an armored, an airborne, a mountain infantry and two training infantry divisions).

At the end of 1984, the /air forces/ numbered 101,000 men, more than 500 combat aircraft, 100 helicopters, 11 tanker aircraft and 18 silo launchers for S-3 intermediate-range ballistic missiles (IRBM). According to the foreign press, the air forces have the following main missions: making strikes against enemy targets in the strategic and tactical depth, supporting the combat operations of the ground and naval forces, performing independent air operations, air-lifting troops and combat equipment, and covering large centers and military installations against enemy air strikes.

Territorially, the air units and subunits are distributed among four military air districts (CVO) with headquarters in the cities of Taverny, Metz, Bordeaux and Aix-en-Provence. In time of peace, the commander of the air forces is responsible for the combat readiness of the aviation (located within the district), and in time of war he carries out the planning and execution of air operations and organizes interaction with the ground and naval forces in the case of joint combat operations.

All of the nation's air force units and subunits are combined into the following commands in accordance with their purpose: strategic air, tactical air force, air defense, air transport, air training, communications, radio electronic warfare and materiel support.

In the opinion of the nation's military leaders, the Strategic Air Command (headquarters at Taverny) is the main strike force of air forces. It includes the 1st IRBM Division, two bomber squadrons and one aerial refueling squadron.

The 1st IRBM Division consists of two squadrons, each of which has ten silo missile launchers (the S-3 missiles have a range of more 3500 kilometers and carry a payload of 1 megaton). Both squadrons are based on the Plateau d'Albion (Alpes-de-Haute Provence Department).

The carrier aircraft of the strategic aviation are 35 Mirage-4A medium bombers, which have a range of 4800 kilometers (with one aerial refueling) and carry one 70 kiloton atom bomb. They are combined into two squadrons (eskadra) with two squadrons (eskadril'ya) each. The tanker eskadra (three eskadril'ya, with 11 KC-135F tankers) provides for the aerial refueling of strategic bombers and other aircraft.

The Tactical Air Command (headquarters at Metz) unites the entire tactical aviation. There are two tactical air commands subordinate to it. An air eskadra includes two or three eskadril'ya (there a total of 20) with 15 combat aircraft each. The 2nd Tactical Air Command does not have air units in peacetime and can be used for mobilization deployment.

The command element of the tactical air forces has around 300 combat aircraft, including 240 fighter-bombers (Mirage-3E, Jaguar-A and Mirage 5-F) and 45 tactical reconnaissance aircraft (Mirage-3R, Mirage-2RD and Mirage-F.1CR).

The Mirage-3E and Jaguar-A (75 aircraft) are carrier aircraft and can operate to a depth of 500-700 kilometers with a 25 kiloton nuclear bomb on board (Figure 3).

The following airfields are the main bases: Auch (Nancy), Saint-Sauveur (Lunksey), Saint-Dizier, Tulle-Rosieres, Colmar and Entzheim (Strasbourg).

The air defense command element (headquarters at Taverny) has 12 eskadriliya, combined into five fighter eskadri, and includes around 180 interceptors (Mirage-3E and -3C, Mirage-F.1 and Mirage-2000). The deployed batteries of Grotale antiaircraft guided missiles (48 launchers) and batteries of 20mm anti-aircraft guns (around 200) provide defense for air bases and IRBM sites. In addition, facilities of the command element of the tactical air forces and other branches of the armed forces can be drawn upon to perform air defense missions.

The Transport Air Command (headquarters at Vielle Couble) has at its disposal around 180 C-160 Transall, Noratlas, MS.760 and Brussard aircraft and up to 100 Puma and Alouette-2 and -3 helicopters.

The Air Training Command is in charge of the flight and technical training of the personnel, while the Communications and Radioelectronic Warfare Command is in charge of organizing communications and radioelectronic warfare, and for calibrating the radar equipment. The Materiel Support Command provides the air units and subunits with aviation equipment, weapons, ammunition and other types of materiel, and also organizes the maintenance and repair.

The air forces are continuing to be outfitted with new aircraft equipment and weapons. In 1984 the forces began receiving the Mirage-2000 multipurpose aircraft (a total of 235, 85 of which are nuclear weapons carriers). The Mirage-2000 carrier aircraft will carry ASMP missiles with nuclear warheads (with a firing range of up to 300 kilometers and a payload of 150 kilotons). They will replace the obsolete Mirage-3E and Jaguar-A carrier aircraft.

France's navy/ (68,000 men) occupies a leading place among the naval forces of the capitalist nations with respect to equipment, armaments and number of sea-going personnel. It is designated for making nuclear attacks against the enemy's most important administrative and industrial centers, for defending the nation's territory from the sea, conducting independent combat operations at sea, protecting naval lines of communication and supporting the combat operations of ground and air forces in Europe, both in oversea territories and in other areas which France considers to be its zones of influence.

According to foreign press reports, the Navy has 115 ships, more than 50 missile, patrol and landing boats, and up to 210 auxiliary vessels. The fleet's main ships are five Redoubtable class nuclear-powered missile submarines, two (Rubis) class nuclear-powered torpedo submarines and 17 Arista, Daphne and Narwhal diesel torpedo submarines, two Clemenceau multipurpose aircraft carriers (with up to 40 planes and helicopters on each), a Colbert cruiser, 13 (Georges Leygues) (Figure 4), (Suffren), (Tourville), (Dupetit Thouars) and (Duperre) class guided missile destroyers, five (Aconit) and (La Galissonniere) class destroyers, 26 Commandant Riviere and (D'Estienne d'Orves) class guided missile frigates, and the Jeanne d'Arc cruiser-helicopter carrier.

Organizationally, the Navy includes a strategic naval command and six operational commands of naval forces: in the Atlantic, the Mediterranean, the Indian Ocean zone, the Pacific Ocean zone and the South Atlantic as well as in Guyana and the Antilles. France's coastal area and adjacent waters are divided into three naval districts: First (headquarters at Cherbourg Naval Base), Second (Brest) and Third (Toulon).

The Navy's effective combat strength includes an eskadra of nuclear-powered missile submarines, two eskadra and three flotillas of surface ships, and battalions and detachments of ships.

The strategic naval command presently has Redoubtable, Terrible, (Foudroyant), Indomitable and Tonnant ballistic missile submarines, each of which carries 16 M20 ballistic missiles (with a firing range of up to 3000 kilometers and a one megaton monobloc warhead). A sixth L'inflexible is undergoing sea trials. It will be commissioned in 1985 as part of the fleet's battle ready forces. It will carry 16 M4 ballistic missiles (with a firing range of around 4000 kilometers, and MR payload and later, an MTRV with six warheads each with a power of 150 kilotons). According to the foreign press, all nuclear-powered missile submarines (with the exception of the Redoubtable ballistic missile submarine) will begin to be rearmed with M4 missiles. It is planned to begin construction of a seventh ballistic missile submarine in 1989/90, which is to become the prototype of a new generation.

The build-up of the submarine forces and the development of modern surface ships are continuing. Specifically, four nuclear-powered, multipurpose submarines, four guided missile destroyers and other ships and auxiliary vessels are under construction.

The Navy's aviation is broken down into carrier, coastal patrol and auxiliary air forces. It numbers around 300 planes and helicopters. The flotilla is the main tactical subunit of the carrier and coastal patrol aviation, and the squadron is the main subunit of the auxiliary aviation.

The carrier aviation has the following flotillas: three fighter-assault flotillas (36 Super Etendard nuclear weapons carriers), a fighter flotilla (15 F-8E Crusader aircraft), a reconnaissance flotilla (eight Etendard-4R aircraft) and two flotillas of antisubmarine aircraft (28 Breguet 1050 Alize aircraft). In addition, there are four flotillas of ASW helicopters (WG.13 Lynx and SA321G Super-Frelon) and one flotilla of transport and landing helicopters (Super-Frelon).

The Coastal Patrol Aviation includes five flotillas (34 Breguet 1150 Atlantique aircraft), and the auxiliary aviation includes ten air squadrons (around 130 planes and helicopters).

The naval infantry consists of a naval infantry battalion (five companies, three of which are reconnaissance and sabotage companies) and six companies for guarding naval bases, which have a combined numerical strength of around 1,000 men.

The /Paramilitary Police/ (85,000 men) is a component of the French Armed Forces and is directly subordinate to the minister of defense. Together with the civilian police, it performs surveillance of the civilian population and servicemen and is called upon for maintaining public order. It is also charged with criminal police functions (prosecution of law-breakers and investigation of criminals). It combats infractions of military discipline, maintains a register of reservists, carries out mobilization, and guards and defends important state facilities. It is armed with small arms, armored and motor vehicles, including light tanks and armored cars.

The Paramilitary Police is subdivided into department and mobile police, depending upon their tasks.

The foreign press states that a number of units and subunits of the Armed Forces (with a numerical strength of over 20,000 men) are stationed on French overseas territories and in certain African nations.

The Armed Forces are provided with personnel on the basis of a law on national compulsory military service, with recruitment by short-term (up to 2 years) and long-term (from 3 to 10 years) contracts, and by training regular officers.

The compulsory national military duty requirement can be met either on active military duty in the armed forces or by performing national defense service, under the program for development of oversea territories or in the provision of various types of aid to the developing nations.

Men between the ages of 18 and 50 years may be drafted. After serving their active military duty, they are listed in the minister of defense's reserve for a period of 4 years (first-turn reserve). They are in the armed forces' reserve to the age of 35 and are then transferred to the national service reserve, where they remain until they reach the age of 50.

More than 400,000 people are drafted annually, 220,000 of which are assigned to the ground forces. The Air Force and Navy are manned mainly out of the regular personnel and with recruitment by contract.

The officer corps is ordinarily replenished with graduates from officer schools, as well as with reserve officers and NCOs who have served at least 8 years in the armed forces and have successfully passed the tests in the corresponding program.

NCO training is conducted at military schools of the service branches and arms of troops for a period of 4 to 14 months. When the training has been completed and the graduates have served 1 year in the forces, they are promoted to the rank of sergeant. The NCOs receive the next military rank in accordance with their position and training level in their field of specialization. The maximum age is 47-55 years, depending upon the branch of armed forces.

The training of the lower ranks in the regular service includes three periods in all of the branches of armed forces: basic military training (2 months), training in the special field (6 months) and training within the subunits. Those drafted for active military duty are sent to training centers of the arms of service or directly to the units and subunits.

The reservists in all categories are attached to units, various military establishments or subunits of the civil defense corps and are periodically called up for training assemblies and military exercises. The total length of their refresher training the entire time they are in the reserve amounts to around 8 months. All categories of reservists undergo refresher training.

According to the foreign press, the reserve of the French Armed Forces numbered 457,000 men in 1982, including 281,000 in the ground forces, 112,000 in the Air Force and 64,000 in the Navy.

Under the 1984-1988 organizational development plan, France's armed forces, in addition to organizational restructuring, and continuing to be outfitted with modern weapons and combat equipment, mainly of national manufacture, are continuously building up their strength.

COPYRIGHT: "Zarubezhnoye voyennoye obozreniye", 1985.

11499

CSO: 1801/166

7 May 1985

## FOREIGN MILITARY AFFAIRS

## NATO'S MILITARY EXPENDITURES ITEMIZED

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 1, Jan 85 (Signed to press 11 Jan 85) pp 17-22

[Article by Col Ye. Nikolayenko and Capt A. Vasil'yev: "The Financing of NATO's Military Preparations"]

[Text] Comrade K.U. Chernenko, General Secretary of the CPSU Central Committee and Chairman of the Presidium of the USSR Supreme Soviet, has stated that the Soviet Union, as a great socialist power, is fully aware of its responsibility to peoples for the preservation and strengthening of peace. The USSR and the other socialist commonwealth nations put forth specific and realistic proposals aimed at controlling the arms race and resolving international disputes through talks. The appeal by the Warsaw Pact states to the NATO nations to begin consultations and talks on reducing military outlays was a logical extension of these peace initiatives.

The importance of this initiative is due to the fact that military outlays are inseparably linked with the realization of the plans of states for organizational development of the armed forces and are one of the most characteristic indices of the build-up of militaristic efforts in individual participants and in NATO as a whole. Since the first years after the North Atlantic bloc was founded, there has been a continuous growth in the absolute size of military expenditures by its members. While official data show that the volume of expenditures for military preparations by these nations amounted to 18.7 billion dollars in 1949, 30 years later it exceeded 218.5 billion. The sum total of military outlays for the period 1949-1979 reached the colossal figure of more than 2.6 trillion dollars. An additional almost 1.5 trillion dollars was spent during the period 1980 to 1984. The growth dynamics for military outlays by the bloc nations are shown in Table 1.

When we examine the financing process for NATO's militaristic preparations, we must bear in mind the fact that funds are allocated for these purposes at two levels: national and interstate. Like every international organization, the functioning of the North Atlantic alliance is based on the creation and use of centralized monetary funds, the most important of which are the budget of its central agencies and a special fund for a program for development of the infrastructure.

Table 1. Military Outlays of the NATO Nations (for Fiscal Years)

Страна (1)	1973-1977	1978-1982	1982	1983
США, млн. долларов (2)	447 150	741 740	196 345	225 345
Великобритания, млн. фунтов стерлингов (3)	25 779	54 148	14 500	17 500
ФРГ, млн. западногерманских марок (4)	184 247	243 379	54 234	57 131
Франция, млн. франков (5)	283 712	571 015	148 021	164 248
Италия, млрд. лир (6)	16 489	42 134	12 294	14 729
Канада, млн. канадских долларов (7)	16 107	28 930	7 655	8 388
Бельгия, млн. бельгийских франков (8)	350 095	579 768	132 127	137 163
Нидерланды, млн. гульденов (9)	35 377	52 945	11 021	12 302
Люксембург, млн. люксембургских франков (10)	4 159	7 538	1 893	2 100
Дания, млн. датских крон (11)	25 263	46 327	11 069	12 036
Норвегия, млн. норвежских крон (12)	23 481	42 862	10 956	12 078
Португалия, млн. эскудо (13)	102 669	220 871	63 817	79 021
Греция, млн. драхм (14)	222 127	583 762	176 270	212 768
Турция, млн. турецких лир (15)	148 704	1 106 020	447 790	556 738
(16) Всего*	724 363	1 235 049	297 445	326 871

\*Total amounts in this line are given in millions of American dollars (at the exchange rates for the corresponding years).

## Key:

- |   |   |
|---|---|
| 1. Country                                    | 9. Netherlands, millions of guilders        |
| 2. USA, millions of dollars                   | 10. Luxemburg, millions of Luxemburg francs |
| 3. Great Britain, millions of pounds sterling | 11. Denmark, millions of Danish kroner      |
| 4. FRG, millions of West German marks         | 12. Norway, millions of Norwegian kroner    |
| 5. France, millions of francs                 | 13. Portugal, millions of escudos           |
| 6. Italy, billions of liras                   | 14. Greece, millions of drachmas            |
| 7. Canada, millions of Canadian dollars       | 15. Turkey, millions of Turkish liras       |
| 8. Belgium, millions of Belgian francs        | 16. Total                                   |

NATO's military budget, which is designated for covering the cost of maintaining the central establishments and headquarters, is made up of contributions from the member nations. The largest contribution is set for the USA. At the present time it amounts to more than 100 million dollars a year. The United States, the FRG and Great Britain, which have actually controlled the functioning of the bloc's central agencies since France withdrew from its military organization, contribute more than 70 percent of the entire budget.

NATO's military leadership devotes a great deal of attention to the construction of permanent facilities and installations in Western Europe, designated for providing material and technical support, the billeting and training of the personnel in peace time, and for the rapid deployment of the forces and the conduct of combat operations in a war. The organizational development is carried out in accordance with programs for the development of the bloc's infrastructure with funds provided by the participating nations. A total of 13.6 billion dollars

was allocated for these purposes from 1950 to 1985, 6.65 billion of which were for the period 1980-1985.

Despite the significant amounts of special-purpose funds created within the bloc, however, the bulk of the funds for the financing of military preparations is allocated for implementing national programs of organizational development for the armed forces. NATO's military-political leadership is exerting an ever increasing influence upon the extent and the focus of those programs by coordinating plans for the use and deployment of the armed forces, by outfitting them with the latest weapons systems and combat equipment, and by increasing the financing of militaristic preparations. The development and adoption of a long-term military program and the decision to increase military outlays for the participating nations by 3 percent annually (from 1979 to 1984) in fixed prices are the most graphic example of the attempts to raise the level of integration. A decision to extend these commitments to the year 1986 was approved at meetings of NATO's Military Planning Committee in May 1979.

A May 1978 meeting of the NATO Council approved a long-range military program covering the period up to 1994 and consisting of a series of detailed measures to enlarge the bloc's possibilities in a number of important areas of the work to further increase the militaristic preparations. It is planned to spend more than 80 billion dollars out of the national budgets for realizing around 120 measures under the program. The program's adoption and its actual fulfillment means that the United States, using the bloc's machinery, has bound its partners to long-term commitments and has thereby drawn them into a new round of the arms race. To a considerable degree it has also gotten the use of their national resources for its own purposes.

Implementing the decisions adopted, the bloc's member states are constantly enlarging the scale of the financing for military preparations. The total amount of expenditures for these purposes reached 1.4 trillion dollars during the period 1979-1983 alone, exceeding the level for the five previous years by almost 75 percent. The portion of the gross national product spent for military purposes also increased during that period in most of the nations in the bloc. It reached 6.9 percent in the USA, 5.6 percent in Great Britain, 4.2 percent in France and 3.4 percent in the FRG (Table 2). This demonstrates that the degree to which the economies of the NATO nations are being militarized is increasing.

Ruling circles in the United States of America are unvaryingly the initiator of the escalation of the arms race. President Reagan's Administration has especially distinguished itself in this respect. During the years in which it has been in power allocations for military purposes have increased to unprecedented amounts. For fiscal year 1984 (which ended on 30 September 1984), they were estimated at 265.3 billion dollars, and it is planned to increase the amount to 297 billion dollars in 1985. The Pentagon swallows up almost one-third of the federal budget. The nation's military expenditures will reach the astronomical figure of 1.7 trillion dollars in the period 1985-1989, and the experts estimate that the average annual growth rate will be 11.5 percent for the five-year period. This is due primarily to the state's aggressive policy and reflects an attempt to create the material foundation for unleashing wars of various sizes for combating the world socialist system and the world revolutionary movement. The acceleration of the arms race and the drastic increase in the military budget are serving to preserve and strengthen the leading status of the American monopolies in the capitalist world.

As a result of the increased efforts to prepare for war, the portion of the bloc's combined military outlays accounted for by the USA has constantly increased since 1981 and has now reached approximately 70 percent. The United States is relying on its dominant military-political position in NATO, however, to shift a significant portion of the burden of the military expenditures onto its allies.

The FRG makes an especially significant contribution to the financing of the bloc's activities. Since West Germany was accepted into the North Atlantic alliance in 1955, its portion of NATO's total outlays has increased from 2.5 to 11 percent—that is, almost 4.5-fold. A total of 38 billion marks was allocated for the Bundeswehr in fiscal year 1984. When outlays for military preparations through other departments are taken into account, the total military expenditures, the Western press reports, actually amount to 59.0 billion marks. West Germany is steadily following a course of building up the combat capability of its armed forces and creating a large military-industrial base which is not hampered by restrictions on the production of certain types of modern strategic weapons. A decision adopted at a meeting of the West European Alliance to lift the last restrictions imposed upon the FRG with respect to the production of bombers and long-range missiles, which was contrary to international agreements, has contributed greatly to this process. West Germany can now produce its own long-range offensive weapons systems capable of threatening the security not only of its neighbors, but also that of states far from its borders.

Despite Great Britain's enormous economic difficulties, it is constantly increasing its military outlays. It continues to occupy first place among NATO's West European nations with respect to the amount of money allocated directly or indirectly for militaristic purposes. The budget for the 1984/85 fiscal year indicates that the nation's military-political leadership is remaining loyal to the bloc strategy and is financing the development of its armed forces in accordance with NATO's long-range program. Great Britain's total military expenditures in 1984 amounted to 18.5 billion pounds sterling, with the Ministry of Defense accounting for 16.8 billion of that.

France, which left the bloc's military organization in 1966, is nonetheless continuing to increase its military outlays at a rapid rate in accordance with the 1984-88 Program Law for Development of the Armed Forces. The military-political leadership has requested 830 billion francs for the Ministry of Defense during that period, intending to raise military expenditures to a level exceeding that of most NATO nations.

The trend involving an outstripping rate of growth of expenditures for the purchase of weapons and combat equipment is becoming a fairly stable feature of the military budgets of the bloc's nations, a fact which indicates that the NATO leaders are attempting to achieve technical military superiority over the Warsaw Pact states. The United States dominates in the development and production of weapons in the North Atlantic alliance. It has concentrated the production of the more important and complex weapons systems, particularly nuclear missiles, there. In fiscal year 1984 the Pentagon allocated 86 billion dollars for the purchase of weapons and around 27 billion dollars for ROKI [scientific research and experimental design work], which accounted for 33.3 and 10.4 percent respectively of total allocations for the U.S. Defense Department.

Table 2. Portion of Military Outlays in the Gross Domestic Product of the NATO Nations (for fiscal years, percentage)

Страна (1)	1973-1977	1978-1982	1983
США (2)	5.7	5.6	6.9
Великобритания (3)	4.9	4.9	5.6
ФРГ (4)	3.5	3.3	3.4
Франция (5)	3.8	4.1	4.2
Италия (6)	2.5	2.5	2.8
Канада (7)	1.9	1.9	2.1
Бельгия (8)	3.0	3.4	3.4
Нидерланды (9)	3.1	3.2	3.3
Люксембург (10)	0.9	1.1	1.3
Дания (11)	2.3	2.4	2.4
Норвегия (12)	3.1	3.0	3.1
Португалия (13)	4.9	3.5	3.4
Греция (14)	6.3	6.5	7.1
Турция (15)	5.4	4.8	4.9

Key:

- |                  |                |
|------------------|----------------|
| 1. Country       | 9. Netherlands |
| 2. USA           | 10. Luxemburg  |
| 3. Great Britain | 11. Denmark    |
| 4. FRG           | 12. Norway     |
| 5. France        | 13. Portugal   |
| 6. Italy         | 14. Greece     |
| 7. Canada        | 15. Turkey     |
| 8. Belgium       |                |

These items also account for a large specific portion of the military budgets of the FRG, France and Great Britain. The foreign experts estimate that the USA and those three West European nations presently perform practically all of the bloc's scientific research and experimental design work, as well as the bulk of the purchases of modern weapons and military equipment.

The NATO military-political leaders continue to focus their attention on building up the strength of the strategic nuclear forces, particularly the matter of improving the precision and survivability of the strategic systems.

The existing nuclear arsenal in the United States is being improved, and new weapons of mass destruction are being developed at an accelerated rate. According to reports in the American press, allocations for the strategic forces in fiscal year 1984 reached 26.3 billion dollars, which exceeds the figure for the preceeding year by 33.5 percent. The Pentagon plans call for the allocation of considerable funds for the purchase of ten B-1B Bombers (6,124,500,000), for further modernization of the B-52 Aircraft (523,800,000) and for the production

of 11 M-3 intercontinental ballistic missiles (2,137,400,000). Development of the ocean-based Trident nuclear missile system is proceeding at full speed. A total of 7,137,800,000 dollars has been requested under this program for 1984 for the construction of the 11th Ohio class nuclear missile submarine (Figure 1 [photographs not reproduced]). Funds were also allocated for the development of the Trident-2 missiles (1,473,200,000 dollars) and the new, land-based, mobile Midgetman intercontinental ballistic missile (467,300,000).

Substantial work is underway to modernize the strategic nuclear forces in Great Britain. It cost 382 million pounds sterling to maintain the Navy's four ballistic missile submarines armed with Polaris missiles in fiscal year 1983/84 alone. The Trident system has a special place in the militaristic plans of the Conservative Government. The cost of that program, including the construction of nuclear-powered submarines and their armament with American missiles, will be 8.7 billion pounds sterling at clearly understated official estimates. Work is presently underway to modernize shipbuilding yards of the Vickers firm at Barrow. Contracts have also been signed for the production of parts and assemblies whose manufacturer will require a long time, to make it possible to place the order for the first submarine in 1985. It is estimated that the cost of implementing the Trident program will amount to at least 3 percent of the British military budget during the next 10-15 years.

A total of 19.3 billion francs has been allocated in France to improve the nuclear capability in fiscal year 1983. It is planned to use these funds to complete the construction of a 6th L'Inflexible ballistic missile submarine, which is armed with the new M-4 Intermediate-Range ballistic missiles, to continue development of the S-X ground-to-ground mobile strategic missile, to considerably increase scientific research and experimental development work to produce the ocean-based M5 ballistic missiles, to continue the research on neutron weapons and so forth.

The production and deployment in Western Europe of the intermediate-range, first-strike Pershing II and cruise missile systems has an important place in Pentagon plans in connection with the program for modernizing the nuclear forces in the European theaters of military operations. In the budget for fiscal year 1984, 429.1 million dollars was allocated for the production of 70 Pershing II missiles, and 592 million was allocated for the production of 170 ground-based cruise missiles.

The ominous plans of the American Administration to build up arsenals of chemical weapons at an accelerated rate and to begin militarizing outer space are causing special concern in the world community. It is planned to spend 10 billion dollars between 1983 and 1987 to implement the program announced by the Reagan Cabinet for "chemical rearmament" of the USA. The White House plans to allocate 27 billion dollars within the next 5 years alone to create an antimissile defense system using space-based lasers, and to increase the figure to 95 billion by the year 2000.

The increased effectiveness of the new weapons systems in the contemporary situation, the command element of the bloc's armed forces believes, will make it possible to accomplish the assignment missions not with nuclear weapons alone, but also with the use of conventional weapons. Along with building up the strategic nuclear capability, the military-political leadership of the USA and NATO is therefore simultaneously giving a great deal of attention to the all-around

development of conventional weapons. In order to build up the combat capability of the ground forces (primarily fire power and maneuverability), the U.S. Defense Department plans to purchase 840 M1 Tanks (1,838,900,000 dollars), 600 M2 combat infantry vehicles and M3 combat reconnaissance vehicles (874,700,000), 130 M988 Sergeant York self-propelled antiaircraft units (646,600,000) and so forth out of the allocations for fiscal year 1984.

The command element of the U.S. Armed Forces is attempting to improve the Air Force by outfitting it with the latest combat aircraft and missiles of various kinds and with modern weapons control systems, as well as by making extensive use of radioelectronic warfare equipment. It is planned to spend the amounts designated for purchasing weapons and military equipment for the U.S. Air Force in 1984 (62.3 billion dollars) primarily to acquire 144 F-16 fighters (255,130,000), 36 F-15 fighters (1,526,200,000) and eight KC-10A transport and refueling aircraft (796 million), and to modernize 29 KC-135 tankers (543 million) and 24 C-5A transports (241.6 million).

A total of 86.1 billion dollars was spent for the construction or re-equipment of ships in the USA in fiscal year 1984, including 2,079,300,000 dollars for the construction of three Los Angeles class nuclear-powered torpedo boats, 3,268,300,000 for three Ticonderoga class guided missile cruisers, 1,365,700,000 for one LHD1 helicopter carriers, and 414.6 million for one LSD41 Woodby Island transport dock. The U.S. Defense Department's budget also covers purchases of a large number of aircraft, various types of missiles and so forth for the Navy.

It is planned to have a new generation of weapons and combat equipment in all the units and formations of NATO's European group of members in the 80's. In 1984, according to the foreign press, the ground forces of NATO's Western European members received more than 700 tanks, primarily the Leopard-II (Figure 2) and Challenger, dozens of artillery guns, hundreds of armored personnel carriers, infantry combat vehicles and combat reconnaissance vehicles; the air forces received up to 300 aircraft, 260 of which were combat aircraft (including Tornado, F-16 and Mirage-2000 Tactical Fighters); and the naval forces received eight destroyers and frigates, ten mine-sweepers, submarines and other combat ships and auxiliary vessels.

A characteristic feature of the development of the aggressive NATO bloc, imperialism's main military-political alliance, is a constant increase in the military budgets of the member nations for purposes of creating the foundation for an unrestrained arms race and for building up a military force by means of which they would be able to dictate their will to other nations and peoples. As a counterbalance to this, the socialist states are making every effort to put an end to this trend in the development of international relations, which is being imposed by the capitalist powers and is dangerous to the cause of peace. While pursuing a consistent and purposeful course of defending universal peace, our nation is at the same time doing everything necessary to reliably assure its own defense capability and the security of its allies.

COPYRIGHT: "Zarubezhnoye voyennoye obozreniye", 1985.

11499

CSL: 1801/166

7 May 1985

## FOREIGN MILITARY AFFAIRS

## JUNGLE COMBAT PRACTICES DISCUSSED

Moscow ZAREBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 1, Jan 85 (Signed to press 11 Jan 85) pp 31-35

[Article by Col V. Dmitriyev: "Combat Operations in Jungles"; passages enclosed in slantlines printed in boldface]

[Text] Having set out on a course of drastically exacerbating the international situation and of preparing to unleash a war against the Soviet Union and other socialist nations, the military-political leaders of the USA do not conceal the fact that the nation's armed forces must always be prepared to engage in combat operations in any area of the planet which they declare to be a zone of their "vital interests." Ruling circles of the USA include Southeast Asia and adjacent waters of the Pacific Ocean, where they have concentrated a considerable military grouping in peace time, to be one such zone. Attempting to strengthen its influence in that region, the United States, along with outfitting the troops with the latest types of weapons and combat equipment, is continuing to improve the organizational structure of the formations, units and subunits, as well as the tactics and methods used by them for conducting combat operations in the specific conditions of a given theater of military operations, including jungles.

American military experts do not deny the fact that the armed forces already have a certain amount of experience in conducting combat operations in jungles. They acquired it during World War II and in contemporary local wars and conflicts in the nations of Southeast Asia, Africa and Latin America. This is reflected in the regulations for the ground forces, "Jungle Combat Operations," which provide a description of jungles and recommendations for organizing and conducting combat operations there.

[General Principles:] The American command element believes that combat operations in jungles are significantly influenced primarily by climate and vegetation. The combination of these two factors greatly limits the movement of troops, observation, the designation of sectors of fire, the organization of communications, target detection and intersection. The jungle climate is hot and humid; the average temperature during the summer months is 35-40 degrees C above zero, and the amount of precipitation, which ordinarily falls in the form of rains and downpours, reaches 3000-4000 mm per year. For several minutes the hot weather gives way to a heavy downpour, which can also stop just as suddenly, and the sun warms the dense vegetation and produces a high level of humidity. The heat and the abundant moisture contribute to the growth of thick tropical vegetation, including trees, giant ferns

and undergrowth interwoven with numerous creeping and winding plants. The thickness of the undergrowth differs in accordance with the amount of sunlight penetrating through the tree branches: the more light, the heavier the undergrowth.

The experts consider jungle conditions to be a major hindrance to the movement of troops. The network of roads in them is extremely sparse, and existing forest roads, paths and cleared strips are difficult to travel over, especially at a time of downpours. It is very difficult to travel over the broken terrain, even on foot, and is a slow process, frequently involving the hacking out of paths.

The American regulations state that the jungle climate greatly affects the health of servicemen who have not undergone acclimatization and do not have special training. This can increase the incidence of malaria, gastro-intestinal, fungous and other diseases among the soldiers. It is pointed out that unless proper steps are taken, the number of hospitalized personnel will exceed the number of wounded. Furthermore, jungles also have a great psychological effect upon the personnel, lowering their morale, especially in the case of failures. A great deal of attention is therefore given to the training of troops designated for conducting combat operations in jungles. For example, it is recommended that commanders and staffs carefully make up the units and subunits with specially trained servicemen and outfit them with the necessary weapons and combat equipment, as well as with personal gear, so that the soldier's field service marching order does not weight more than 20 kilograms.

It is the opinion of the command element of the ground forces that the infantry is most suited for jungle operations. Considering existing experience, it believes that combat operations will most frequently be conducted by small subunits (platoons and companies) armed with light automatic weapons, hand-held anti-tank rocket launchers, knives, hatchets (or machetes) and so forth. It is planned to reinforce these subunits with artillery and mortars, and when there are roads, clearings or paths, with armored personnel carriers and tanks. It is presently recommended that the subunits be able to conduct relatively independent combat operations with minimal requirements for combat and rear services support. According to information in the foreign press, for example, an infantry battalion may consist organizationally of four infantry companies and a support company armed with light fire arms, 81mm mortars and hand-held anti-tank rocket launchers (instead of 106.7mm mortars and the TOW and Dragon anti-tank missile systems respectively).

The U.S. Army's command element believes that a great deal of attention should be devoted to reconnaissance and security when combat operations are organized in jungles. We know of cases in which units and subunits neglected those types of combat support, ended up in ambushes and traps, and suffered heavy losses. The American regulations therefore underscore the fact that the specific jungle conditions and the limited number of sources from which to acquire intelligence on the enemy make it necessary for every commander "to see the battlefield" as in no other conditions.

Special studies made by American military experts on the visibility conditions for various military objects in jungles have shown that a camouflaged moving object can be detected at distances of 15-35 meters in a tropical forest, while a stationary object can be detected at up to 18 meters. In individual areas a camouflaged soldier can be seen (detected) at a distance of 1.5 meters. Because of this, it

is recommended that observation be organized mainly on open areas of the terrain, in clearings, forest roads, cuttings and so forth, and that elevations, ridges and tall trees be chosen as the observation sites. Nor is the possibility of conducting reconnaissance by listening ruled out, since engine noises, the clanging of metal and conversations can be heard well in jungles, where it is always relatively quiet. It is recommended that ground reconnaissance and signaling equipment be used and that patrolling be properly organized, especially on the distant approaches to the positions of one's troops.

It is pointed out that in the thick vegetation, troops can be taken by surprise and drawn into battle relatively easily. It is therefore recommended that commanders at all levels pay good attention to the security of their units and subunits in all types of combat activities. Special stress is laid on the fact that the areas where one's troops and bases are located should be prepared for all-round defense with appropriate sectors of fire. Patrols should be sent out 700-1000 meters on all paths leading to the disposition area. Security subunits are posted on all roads, paths, river channels and branches leading to the area or passing through the vicinity.

A jungle /offensive/ is planned and carried out on the basis of principles generally accepted in American regulations: a study of the enemy and a knowledge of the area of combat operations, the concentration of superior personnel and equipment, the execution of the strike, the neutralization of fire weapons, the destruction of enemy troops, the breakthrough and conduct of an offensive in the enemy's rear area, and continuous and flexible rear services support for one's troops. There are a number of specific features in the organization of combat operations and the employment of units and subunits of various branches of troops, weapons and combat equipment, however.

It is recommended that an offensive be conducted primarily on separate and isolated axes along roads, valleys, the channels of rivers and streams, and not in thick jungle, which considerably complicates the offensive, limits and contains the maneuvering of the troops.

The possibility of conducting an offensive along cross-country roads made by the troops on the general axis of the offensive exists, however in the absence of roads or paths. The foreign press points out, however, that considerable time and effort are needed to build them, and the handling capacity of those axes is extremely limited, which slows the pace of the offensive. The regulations therefore state that calculation of movement in jungles is frequently based on time and not distance. It is frequently a question of how long it will take to go from one line to another or from one point to another, and not how much distance will have to be covered.

The American military experts feel that a jungle offensive requires detailed and thorough organization of operations and is frequently conducted in platoons or companies (at most, battalions), and rarely by a brigade or an entire division. It is recommended that the commanders use their personnel and equipment in those areas and against those targets the capture or destruction of which would assure success in the battle. Centers of population, railways, airfields, elevations, ridges, rivers, roads and even paths become highly significant in those circumstances and may prove to be extremely important for the accomplishment of the mission.

It is also pointed out that there is no point in the subunits wandering aimlessly through thickets in search of an enemy evading combat, for example, or to attempt to capture and hold large areas, since this requires considerable amounts of personnel and equipment. It is practical to focus the units and subunits on an offensive against forces which have been detected and are fixed at their positions, as well as for attacking and destroying targets which are known to the troops and can be reached by their weapons. Upon approaching the defensive positions to actual firing distance, mainly the enemy's infantry weapons, the advancing troops deploy from march or approach march into battle formation and attack.

According to reports in the foreign press, an infantry battalion in a jungle offensive may arrange its battle formation in a single echelon with a reserve or in two echelons. Ordinarily each company in the first echelon is assigned an attack zone (or sector), the width of which is determined by the nature of the terrain, by the existence of roads or paths and by the arrangement of the battle formation, and may be as great as 500-1000 meters. The battalion's command post is ordinarily located at the center of the battle formation of its reserve. It is pointed out that in jungle conditions tanks will be used on a limited basis and primarily on axes accessible to tanks for supporting the offensive by infantry units and subunits, for combing the area, for accompanying and guarding various columns, for pursuing a withdrawing enemy and for conducting reconnaissance. In the aggressive war in Vietnam, for example, the Americans created something like battalion tactical groups consisting of a tank company, an infantry company in armored personnel carriers, a battery of self-propelled howitzers and other combat support subunits for conducting reconnaissance and for capturing and holding important installations. Such a group was supplied from the air by helicopters.

The U.S. military specialists believe that jungle combat operations will have the fast-moving, intense and fierce quality of close combat, in which only part of the personnel and equipment will be active. It is therefore recommended that when a battle breaks out, the unit and subunit commanders use available personnel and equipment to neutralize the enemy's fire weapons and pin the enemy down to make it possible to move other subunits into the battle area for purposes of outflanking or encircling the enemy or of cutting off possible routes of withdrawal.

The American manuals state that the mission of providing fire support for subunits engaged in battle is one of the most difficult missions performed in an offensive. They stress the fact that it may be limited in jungles, because of the difficulties involved in determining the precise location of targets and of maneuvering artillery and mortars within the limits of effective firing range. If good visibility is possible, however, the artillery, mortars, helicopters and tactical aircraft are capable of providing effective fire support for attacking units and subunits.

Based on the experience of the combat operations carried out by American troops in Vietnam, the military experts point out certain specific features of artillery employment in the course of providing fire support for troops. It was used in a decentralized manner, for example, attached to subunits operating on isolated axes. The maneuvering of artillery was extensively employed, with the subunits airlifted in batteries by helicopter into the enemy's rear area and opening fire on areas of concentration of enemy troops. The troops were also supported from artillery fire bases (positions) located on elevations to make it possible to fire in any direction. As the infantry advanced, the artillery was transferred by helicopter to new fire positions, from which it continued to provide fire support for the attackers.

As a rule, these bases were made up of several artillery batteries and were either temporary and designated for supporting specific operations, or stationary for firing at important areas, lines of communication or installations for long periods of time.

According to reports in the foreign press, troop control in an offensive is ordinarily decentralized down to the very lowest level. It is recommended that special attention be given to assuring reliable communication among all the weapons.

The foreign press states that a jungle defense is organized and conducted as a whole on the basis of the general principles of defensive combat but taking the area's specific climatic and natural conditions into account. The American manuals recommend that it be organized on a broad front, concentrating the effort on roads and other axes accessible for operations. The troops set up an all-around defense and security, ordinarily with the battle order formed in two echelons with a reserve. Second echelons and reserves are created for combatting infiltrating enemy subunits and groups, for reinforcing subunits in the first echelon and making counterattacks.

The foreign press stresses the fact that the principle of all-around defense is especially important in jungles. During the aggression in Vietnam, for example, American troops created a security zone or strip with a radius of several dozen kilometers around bases, troop locations and headquarters. A zone was broken up into sectors on the outer perimeter and inside it, in which battalion defense areas consisting of company and platoon strongpoints were set up. Patrolling, security and ambushes were set up before the defensive positions, and various engineer obstacles were created. The adjacent area was monitored from the air by personnel and facilities of the tactical and army aviation.

American military experts believe that this defense structure can be used by forces designated for conducting modern combat operations in jungles. It is especially pointed out that when the defense is set up, the units and subunits must make extensive use of various technical means of detecting the enemy (reconnaissance-signaling devices, radar, night vision devices and signal flares), land and other types of mines. It is also recommended that they occupy reserve areas, while remaining within range of their fire support weapons.

According to the American manuals, it is best to have the forward defensive edge on the most advantageous lines, while the platoon and company positions should have one or both flanks backed by such natural barriers as a river, lagoon, swamp, steep cliff or the like. Security positions are set up before the forward edge, which should be powerful enough to restrain an approaching enemy and prevent it from attacking before the positions occupied by the subunits have been warned.

When organizing a defense in jungles, it is recommended that a great deal of attention be given to the clearing of an area before the forward edge for surveillance and firing, and to setting up anti-personnel mine, wire, and other engineer obstacles made of both organic and improvised materials. The foreign press also states that the cutting down of vegetation to improve sectors of fire, especially for automatic weapons, should be kept to a minimum, since this is a clear indication of its position. It is therefore recommended that a fire "tunnel" from 1 to 4 meters in width be cut out in the vegetation "wall," which is camouflaged with overhanging foliage and bushes left in place.

It is best to arrange the fire system in a defense in accordance with the terrain before the forward edge and in defensive depth, echeloning the fire weapons. One of the main requirements of the defense is for the fire pressure on the advancing enemy to increase as the enemy approaches the defense line. The greatest fire intensity should be achieved when the attacking troops have moved directly up to the forward defensive edge, with a zone of solid multilayer artillery, mortar and small arms fire created there, as well as on the flanks of company and platoon strong-points and the boundaries between them.

Fire of all types in the defensive depth is coordinated with counterattacks by second echelons and reserves for purposes of taking advantage of the result of the fire strikes for completely routing an enemy which has broken in. These are undertaken before the enemy manages to dig in at captured positions. Attention is also directed to difficulties involved in the use of second echelons and reserves for executing counterattacks. These difficulties are due to the absence of roads, as a result of which it is recommended that the troops make cross-country routes, cut out clearings and in certain cases, build roads.

The question of enhancing the mobility of units and subunits of ground forces designated for use in jungles has recently been discussed in the foreign press. It is recommended that helicopters of the army aviation be extensively used to perform this mission. On the tactical level, the American command proposes conducting so-called air-mobile operations, which involve the transfer of units and subunits along with weapons, combat equipment and items of combat, material and technical support to the battlefield on helicopters, as well as supporting them from the air with helicopter fire support and tactical aircraft during a battle. Strict coordination, surprise and dynamic actions by the troops, their rapid crossing of significant distances, precision in calculating the time and in arriving at the designated areas, maneuverability and flexibility in the execution of missions, and the switching from one type of combat operations to another--the American military experts maintain that these are the main features of air-mobile operations. Various types of maneuvering were worked out on the practical level and recommended to the forces during the aggressive war in Vietnam, each of which was given a specific name: "Encirclement," "Ring," "Hammer and Anvil," "Double Bound," "Line," "Talons," and so forth.

These are the views in general form of the command element of the U.S. ground forces on the organization and conduct of jungle combat operations. The foreign press reports that the American military is currently improving the tactics of these operations, this time in Central America, which has been turned into a "hot spot" of the planet through the fault of U.S. imperialists. The USA's thuggish attack on Grenada, which the Pentagon assessed as a successful operation under difficult circumstances, was a glaring act of international brigandage. The USA's military advisors, however, are continuing to train Honduran and Salvadoran cutthroats to combat the patriotic forces, devoting special attention to operations for infiltrating mountain regions with dense vegetation. In addition, certain subunits of the American ground forces have participated with Honduras in exercises like the Big Pine exercise, in which questions of conducting combat operations under those circumstances were specifically worked out.

COPYRIGHT: "Zarubezhnoye voyennoye obozreniye", 1985.

11499

CSO: 1801/166

FOREIGN MILITARY AFFAIRS

TANK MODERNIZATION DEVELOPMENTS DESCRIBED

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 1, Jan 85 (Signed to press 11 Jan 85) pp 35-40

/Article by Col B. Safonov, candidate of technical sciences: "Modernization of Tanks in the NATO Nations"/

/Text/ In the plans for military preparations being made in nations of the aggressive NATO bloc, an important place is assigned to the further improvement of armored equipment, primarily the main combat tanks. It calls for both the building of new tanks and the modernizing of existing models.

Tank-building experience in the leading NATO nations has shown that the process of developing a new tank takes around 10 years from the moment the tactical and technical specifications are worked out until the forces begin receiving the series-produced tanks, and involves fairly large outlays.

A new tank ordinarily considerably surpasses previous models with respect to its combat features. After it is received by the forces, it is in series production for many years and is then used for 20 or 30 years in the forces. Means of armed conflict--antitank weapons, among others--undergo further development during that period. As a result, the tanks in use no longer fully meet the requirements made of them. New technical designs are increasing during that period, designs which can be incorporated in tank-building and improve the combat characteristics of the tanks. The foreign experts believe that all of this makes it possible and necessary to modernize the tank pool.

By modernization of the combat equipment the foreign experts mean bringing the vehicles, instruments, armaments and various types of equipment into conformity with modern requirements by making relatively insignificant changes in the structure and introducing new systems and materials or processing methods. With respect to tanks, it is a continuous process of structural and technological measures aimed at enhancing the combat and technical features of the tanks and extending their service life. It is pointed out that the development of new models is carried out simultaneously with this process. Furthermore, the technical achievements produced in the course of developing the new tank can be used for modernizing existing models, and vice versa.

The foreign experts distinguish two aspects of this process--modernization of the tank in the course of production and modernization of models previously produced. The purpose of the former is to introduce into the design improvements produced by the development of production capabilities, as well as the latest achievements of science and technology, whereas the purpose of the latter is to bring the combat features of tanks previously produced up to a level with the new model. Practically all of the second generation of tanks were repeatedly modernized during the production process--the West German Leopard-1 (the vehicle was given index-numbers 1A1, 1A2, 1A3 and 1A4), the American M60 (M60A1 and M60A3), the British Chieftain (around 13 modifications, including the latest, the Challenger, which is already being received by the forces, Figure 1 [photographs not reproduced]), the French AMX-30 (AMX-30B2 and AMX-32) and others. Programs have now been worked out for modernizing the new Leopard-II (FRG) and M1 Abrams (USA) tanks, which are being implemented in the course of their production. According to reports in the foreign press, almost all of the tanks now in the ground forces of the capitalist nations have been modernized. The experts stress, however, that modernization in the process of their production provides the greatest possibilities for enhancing the combat features and perfecting the designs of tanks.

In the planning and organization of projects for modernizing tanks abroad, the focus is on developing those features which have the greatest influence on their combat effectiveness. The main attention is therefore devoted to enhancing their fire power, their protection and mobility. Steps are also taken to eliminate existing structural deficiencies, to improve their operating features and so forth.

The matter of enhancing the fire power of tanks is linked to the resolution of three main problems: reducing the time spent by the crew in detecting and identifying targets on the battlefield, accelerating the process of preparing a round of ammunition, and destroying detected armored targets.

The foreign experts point out that considerably more time is now spent to detect targets from a tank than to destroy them. When the tanks are modernized, fairly serious attention is therefore given to increasing the search capabilities of the crews, a fact reflected primarily in the outfitting of the vehicles with improved day and night instruments. The fact is underscored that the main directions for enhancing these capabilities are the following: improving the quality of the instruments (increasing the field of view, light transmission and discrimination capability, stabilizing sighting lines or the sights themselves, and so forth), achieving a more efficient arrangement from the standpoint of convenience of use, employing instruments (which operate in the optical, heat and radar ranges), and making it possible for several crew members to search for targets simultaneously, particularly the gunner and commander (with the condition that each of them can open aimed fire independently). Television sights are being installed on the Leopard-II tanks, for example, which were initially produced with a television observation system (the transmitting camera was mounted on the gun mantlet, and video monitoring devices were installed at the work positions of the gunner and the tank commander). It is planned to install them on all the Leopard-II tanks, as well as the modernized models of the Leopard-1 and the Marder infantry combat vehicle.

Comprehensive automated fire control systems (SUO) have been extensively installed on foreign tanks in the process of their modernization in recent years. This has

been done to enhance firing accuracy and reduce the amount of time required to prepare the first round. The systems include weapons stabilizers and observation instruments, a laser range finder, an electronic ballistic computer and other components. These systems make it possible to consider fairly objectively a large number of factors influencing firing accuracy, factors such as the incline of the gun's trunnion axis, the crosswind component, barrel bore wear, powder charge temperature, and others.

Integrated fire control systems have been installed on the new Leopard-II and M1 Abrams tanks, as well as the basic models in the second generation, in the process of their modernization. Work is presently under way to further improve the fire control systems. Specifically, a new fire control system will be installed on all modifications of the Leopard-I tank. It is planned to use an improved fire control system, which includes, in addition to the aforementioned basic components, a panoramic television device for the commander and an automatic tracking system, in the modernization of the American M1 Abrams tank in the production process. In addition, a new electronic ballistic computer and a laser rangefinder which operates on carbon dioxide will be used in this fire control system.

Increasing the shells' effect on the target is considered to be one of the most important directions for enhancing the fire power of tanks. A switch is being made extensively to large-caliber guns for this purpose in the modernization of tanks. Specifically, this was done in the modernization of the M48 tanks (USA, FRG, Israel and Spain) and the Centurion (Great Britain, Israel, Republic of South Africa). Beginning in September 1985, it is planned to switch from the 105mm rifled gun to a 120mm smoothbore gun in the process of producing the American M1 Abrams tank.

The Western experts also believe that there are still extensive possibilities in the area of improving the ammunition. The effectiveness of sub-caliber, armor-piercing shells has increased drastically in recent years. This was achieved by switching to elongated shell cores, fin-stabilized in flight. Increasing the ratio of the core length to its diameter increases the shell's transverse load and its penetrating capacity. The use of heavy and solid materials for producing the cores does the same.

Other types of shells, hollow-charge, HE armor-piercing, and those with prefabricated lethal components--are also being improved. The foreign experts stress, however, the introduction of new and improved ammunition into the tank's unit of fire ordinarily requires major modification of the set of fire control instruments.

The enhancement of tank protection (in the process of modernizing them) against conventional weapons is being carried out in the NATO nations in three main directions: reducing the probability of enemy shells striking the tank, increasing the strength of the armored structure and reducing the effect of the shells after they have penetrated the armor. It is believed that the first can be achieved by employing a system of camouflage means making it difficult to detect the tank (in the optical, heat and radar ranges) and to conduct aimed fire at it. The Western experts include the use of protective and distorting colors (Figure 2), insulating coverings and smoke agents, as well as reducing the noise level of the vehicles. The fact is stressed that the role of camouflage measures for enhancing the tank's overall protection is growing substantially in the modern situation.

Despite the great importance of the above-listed steps for enhancing the protection of tanks, it is the view of foreign experts that strengthening the armor protection will contribute most. They believe that it will be difficult to improve the armor protection, however, even in the process of substantial modernization. The improvement of the armor protection is therefore limited mainly to installing anti-hollow-shell plates and additional armoring of the most important sections of the hull and turret. On the new tanks, in the designs of which combination armor is used, it is possible to increase the protection by replacing the filling (the middle layer of laminated armor) with more energy-absorbing filler. This is being done on the Leopard-II and M1 Abrams tanks, among others, in the course of their series production.

When a tank's armor does not meet the demands made of it to a substantial degree, it is necessary to take complex and expensive steps to reinforce its protection. The armor on the West German Leopard-I tank, for example, was first strengthened in the course of modernizing it by hanging additional sheets of armor on it. A new turret then began to be installed on it. It is made of spaced armor, which has approximately twice the shell-resistance.

The use of so-called "active armor" (flat explosive charges arranged in metal boxes over the armor) is considered by the foreign experts to be an extremely promising way to enhance tank protection in the process of modernizing them. The operating principle of this charge is graphically shown in Figure 3. When a hollow-charge shell strikes the box, the detonator is activated, and a hollow-charge jet is produced. Injecting itself at great speed into the flat explosive charge, it causes the charge to detonate. The shock wave which is formed deforms and breaks up the hollow-charge jet, greatly reducing its penetrating capacity. The foreign press has reported that the effectiveness of such flat explosive charges was tested by Israel during its aggression in Lebanon in the summer of 1982. Studies of the use of explosive substances for protecting tanks against hollow-charge, antitank weapons are also being performed in the USA, the FRG, France and other countries.

A reduction in the effect of shells after they have penetrated the armor is being achieved, among other ways, by improving the fire-fighting equipment, by localizing damage, and so forth.

In the course of modernizing tanks, the foreign experts are giving a considerable amount of attention to increasing their mobility, mainly their average running speed. The engines are being replaced with more powerful and economical engines for this purpose, and more effective cooling systems, new transmissions (including automatic ones), modern turning mechanisms, improved components for the tracks and suspension, and equipment for underwater operation are being used. Teledyne Continental Motors in the USA, for example, developed on its own a modernized version of the M60 tank (the M60 Super). A new engine (1200hp), a hydromechanical transmission and a hydropneumatic suspension were installed in it, and it was provided with additional armor.

The reliability of the assemblies and systems is being increased and the operating characteristics are being improved in the modernization process. It is obvious that the longer a tank has been in use, the more modernization work will have to be performed to extend its service life. Figure 4 shows the structural changes made in the process of modernizing the American M48A1 tank, which has been brought

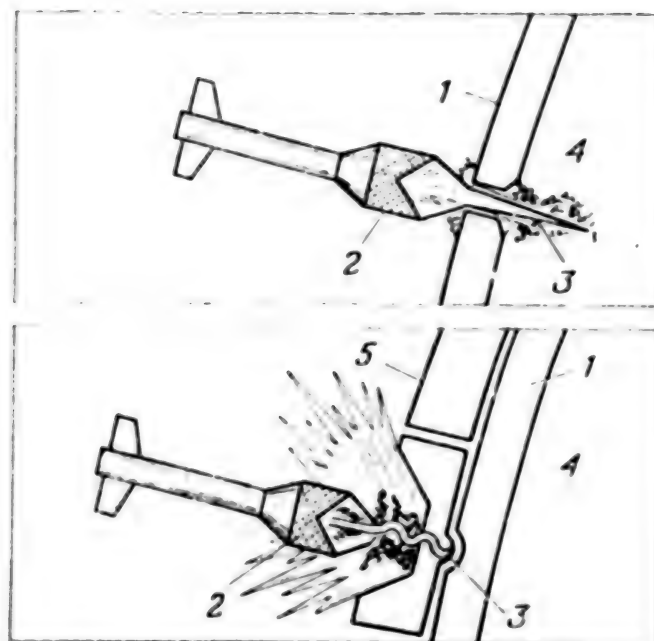


Figure 3. The operating principle of "active armor" (top--penetration of tank armor not equipped with flat explosive charges): 1. main armor, 2. armor-piercing, hollow-charge shell, 3. hollow-charge jet, 4. interior of tank, 5. metal container with explosive charge

up to a level with the M48A5. Approximately the same steps are being taken in the FRG in the modernization of the M48A2 tanks (to a level with the M48A2GA2).

When they analyze programs for the modernization of tanks, the Western experts stress the fact that a tank is a complex system, all of whose elements mutually influence one another. Altering any one of them will therefore inevitably require modifications and improvements in others. The switch to a gun of greater caliber, for example, will entail the need to modify the fire control system and rearrange the ammunition storage compartments, and may increase the weight of the turret and disturb its balance, alter the center of gravity of the vehicle as a whole, and so forth. This will in turn require structural changes in the components giving the tank its mobility. Boosting the engine makes it necessary to strengthen the transmission and the track and suspension assemblies. In general, all of this increases the amount of work and the cost of modernization.

The latter frequently reaches an amount equal to approximately half the cost of the tank. In the USA, specifically, the main efforts are now being focused on improving the M1 Abrams tank in the process of its production. The modernization program is in two phases. During the first (which begins in 1985) a 120mm smooth-bore gun will be installed (with corresponding alterations of the fighting compartment--the aiming stabilizer and drives, the sighting devices, the power unit, the ammunition storage compartment and so forth), it will be provided with greater protection against conventional and nuclear weapons, and improvements will be made in the suspension and drive. The vehicle will be given the index-number M1E1 (Figure 5). During the second phase in the first part of the 90's, it is

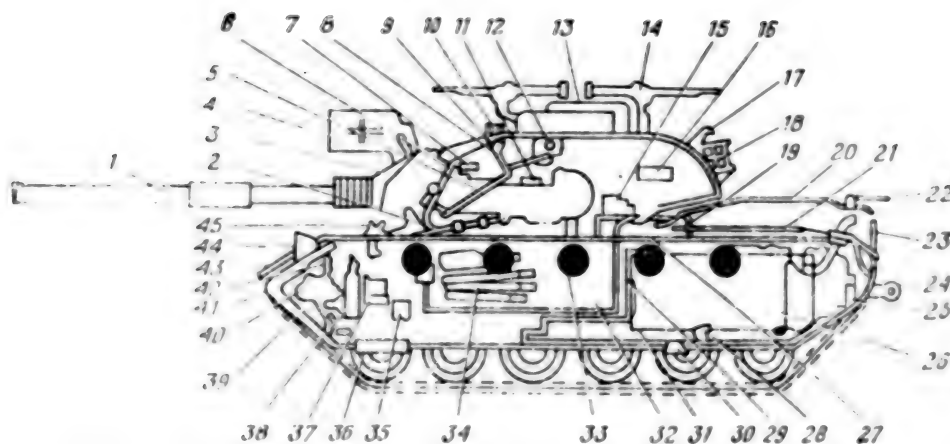


Figure 4. Assemblies, units and other components of the M48A1 tank which have been modernized to bring it up to a level with the M48A5: 1. M68 gun, 2. gun aiming drives, 3. gun mantlet, 4. 2.3 kilowatt searchlight, 5. gun mount, 6. internal nylon ballistic protection, 7. M114/M105 telescopic instrument, 8. M13B1 quadrant, 9. M10A6 ballistic drive; 10. M32 or M116 periscopic instrument, 11. M12B1C ballistic computer, 12. M17B1C rangefinder, 13. low-profile commander's cupola, 14. machine-gun on loader's hatch, 15. traverse gear-box for manual turning of turret, 16. ammunition stowage compartment in turret, 17. instruments and accessories for searchlight, 18. supply container on turret; 19. air cleaner for power unit, 20. heat-dissipating screen over motor and transmission compartment, 21. protective covering over motor and transmission department, 22. steady rest for gun while traveling, 23. engine exhaust manifold, 24. towing hooks, 25. brackets for securing motor and transmission block, 26. motor and transmission block and final drive gear, 27. turret support, 28. torsion bars, 29. stiffening girders, 30. drain valves, 31. fuel tanks and lines, 32. fighting compartment, 33. top rollers, 34. ammunition stowage compartment in fighting compartment, 35. spring rest and front support arm, 36. emergency hatch for driver-mechanic, 37. ammunition storage compartment in hull, 38. fire extinguishing system, 39. motion control drives, 40. heater for crew, 41. welding of hull parts, 42. speedometer/tachometer, 43. boxes and trays of spare parts, instruments and accessories, flaps, 44. combination headlights, 45. driver's observation instrument

planned to improve the 120mm gun, to reduce the size of the crew by automating the loading process, and alter the vehicle's arrangement. If this part of the modernization program is successfully accomplished, the American experts believe that the tank, which has been designated the M1E2, may develop into a new one--the MBT-95.

It is apparent from what we have said that intensive tank modernization is underway in the NATO nations. The main purpose of it all is to significantly enhance the combat capabilities of the tanks at various stages of their service life.

COPYRIGHT: "Zarubezhnoye voyennoye obozreniye", 1985.

11499

CSO: 1801/166

## FOREIGN MILITARY AFFAIRS

### DEVELOPMENTS IN ANTIAIRCRAFT ARTILLERY DESCRIBED

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 1, Jan 85 (Signed to press 11 Jan 85) pp 41-48

[Article by Lt Col A. Tolin: "Antiaircraft Artillery Guns" passages enclosed in slantlines printed in boldface]

[Text] The armies of the capitalist nations have recently been devoting increasing attention to the improvement of air defense for the ground forces. A number of models of weapons and combat equipment have been developed on the basis of experience in local wars and exercises. The Western press states that they should provide for effectively battling aircraft over the entire range of altitudes--from extremely low to high. The foreign military experts regard antiaircraft guns as the weapons necessary for destroying low-flying targets.

Despite the fact that the foreign armies have short-range antiaircraft missile systems (ZRK), there continues to be a need for antiaircraft artillery. The reason for this is that antiaircraft guns have a number of advantages, which include the following: rapid reaction time, capacity for rapidly transferring fire from one target to another, the possibility of firing both at air targets and at lightly armored ground targets, the insignificant size of the air space not covered near the fire position, simplicity of operation and ammunition storage, as well as of organizing a supply of them for the antiaircraft units and subunits.

The armaments of the capitalist nations' armies include both self-propelled and towed antiaircraft guns. The most important role is assigned to self-propelled antiaircraft guns (ZSU), which are regarded as the main division air defense weapons. The high level of mobility, the possibility of firing during brief halts, the armored hull and turret permit self-propelled antiaircraft guns to engage in combat operations right in the combat formations. Because of this, the Western experts believe that they satisfy most fully the requirement for covering mechanized and armored units and subunits (especially in an offensive and on a march) against low-altitude air strikes. The towed guns are designated mainly for defending important stationary military installations and air fields against low-flying targets. The main tactical-technical characteristics of certain models of self-propelled and towed antiaircraft guns are given in the table.

# Main Tactical-Technical Characteristics of Self-Propelled and Towed Antiaircraft Guns

(1) Наименование (1) Сторона разработки год разработки индекс	(2) Год применения	(3) Средняя масса снаряда кг (4)	(4) Максимальная эффективная дальность стрельбы км	(5) Средняя скорость стрельбы выстрелов в мин	(6) Питание автоматическое или ручное
1	2	3	4	5	6
<b>Самостоятельные</b>					
40 мм спаренная ЗСУ M247 «Сержант Йорк» США 1984 (10)	54	0.98 1000	4	300	500
35 мм спаренная ЗСУ «Гепард» ФРГ 1976 (11)	42.6	0.55 1175	4	550	600
30 мм спаренная ЗСУ на базе танка AMX-13 Франция 1966 (12)	12.2	0.40 1000	3.5	600	600
20 мм автоматическая ЗСУ M163 «Вулкан» США 1968 (13)	12.7	0.12 1000	1.5	500	1800
<b>Буксируемые</b>					
40 мм одноствольная ун- тавная L70 Швеция 1951 (14)	4.8	0.98 1000	4	300	122
35 мм спаренная ун- тавная GDF-001 Швейцария 1963 (15)	6.4	0.55 1175	4	550	112
30 мм спаренная ун- тавная «Артемида-30» Греция (16)	6.2	0.40 1000	3.5	600	500
20 мм спаренная ун- тавная Mk20 «Рх202» ФРГ 1972 (17)	1.6	0.12 1000	1.5	500	500
20 мм спаренная ун- тавная Mk20 Rh202 ФРГ 1972 (18)	1.61	0.12 1000	2	800	550
20 мм автоматическая пушка «Тараск» Фран- ция 1976 (19)	6.66	0.12 1000	1.5	740	140
20 мм автоматическая пушка GAI-B01 Швейцария 1954 (20)	6.4	0.12 1000	1.5	1000	50

\*For one barrel.

## Key:

- Developing nation. Year received in forces
- Combat weight, tons
- Shell weight, kilograms
- Muzzle velocity, m/s
- Maximum effective, inclined firing range, kilometers
- Rate of fire, rounds/minutes
- Unit of fire transported, rounds
- Self-propelled
- Towed
- 40mm paired M247 Sergeant York self-propelled antiaircraft gun, USA, 1984
- 35mm paired Gepard self-propelled antiaircraft gun, FRG, 1976
- 30mm paired, self-propelled artillery guns on AMX-13 tank, France, 1966
- 20mm 6-barrel M163 Vulcan self-propelled artillery gun, USA, 1968
- 40mm single-barrel L70 gun, Sweden, 1951
- 35mm paired GDF-001 gun, Switzerland, 1963
- 30mm paired Artemis-30 gun (experimental), Greece
- 20mm 6-barrel M167 Vulcan gun, USA, 1968
- 20mm paired Mk20 Rh202 gun, FRG, 1972
- 20mm automatic Tarask cannon, France, 1976
- 20mm GAI-B01 automatic cannon, Switzerland, 1954

The foreign military experts say that the West German (35mm) and American (40mm) paired, self-propelled Gepard and M247 Sergeant York antiaircraft guns are the most improved self-propelled antiaircraft guns in the armaments of the foreign armies. Their fire control systems include radar sets which provide for independent detection and shelling of targets, regardless of the time of day or weather conditions.

The /Gepard self-propelled antiaircraft gun / (Figure 1 / photographs not reproduced /), which is based on the Leopard-I tank (maximum speed--65 kilometers per hour, range--600 kilometers), is equipped with the MPDR-12 detection radar and the Albis tracking radar, which operate on the 1500-5200 and 15,350-17,250 megacycle frequency bands respectively. Both sets have a range of 15 kilometers. There is also "friend-or-foe" identification equipment.

The identification radar has a 23 decibel coefficient for suppressing reflections from local objects. The station's pulse and medium power are 4 and 0.1 kilowatts respectively, and the pulse duration is 3.3 microseconds. The antenna, which is located in the rear part of the turret, rotates at a speed of 60 rotations per minute and forms a cosecant-quadratic radiation pattern in space, which is  $6.3^\circ$  wide on the horizontal plane.

The antenna of the tracking radar, which is beneath a radome, is mounted on the front part of the turret and can rotate for azimuth within a  $200^\circ$  sector. This is essential to provide for the turret's independent rotation on the horizontal plane (when laying the guns at a point of aim) and tracking targets by azimuth.

The two stations operate independently of each other, which makes it possible to scan the air space and search for new targets while tracking the target selected for shelling. For firing in a situation involving the extensive use of radio-electronic warfare equipment, the commander and gunner have optical sights with 1.5- and 6-fold magnification and a field of 50 and  $12.5^\circ$  respectively.

The fire control system has two semiconductor analog computers, one of them a backup, for performing the task of making contact and determining the horizontal and vertical lead angles, based on information on the target's movement parameters. Computation of the firing data takes into account the tilt angles of the gun body and muzzle velocity of the shells, which is measured by special sensors mounted on the barrel muzzles.

The artillery part of the Gepard self-propelled artillery gun includes two 35mm automatic guns produced by the Oerlikon company of Switzerland and a dual, belt feeder mechanism which makes it possible to fire different types of shells. The self-propelled mount is outfitted with navigation equipment, communication equipment, and atomic- and chemical-protection system, and mechanisms for automatically converting it from march to combat status.

The equipping of the FRG's ground forces with the Gepard self-propelled antiaircraft gun has now been completed (more than 400 have been delivered). Six-battery regiments (six guns in each battery) have now been formed in the Bundeswehr divisions, instead of the former antiaircraft artillery battalions. The ground forces of Belgium and the Netherlands also have the Gepard. The Dutch version of the gun differs from the West German self-propelled artillery gun in that it has a target detection radar of Dutch development, which operates on a frequency band of 8-10 gigahertz.

Like the West German gun the /American M247 Sergeant York self-propelled anti-aircraft gun is also an all-weather weapon (Figure 2). It is based on the M48A5 tank and consists of an artillery section, a fire control system and support systems.

The artillery part includes 40mm automatic guns (a modified version of the L70 gun produced by the Bofors firm of Sweden), which are supplied with ammunition independently of each other by means of an unlinked ammunition feed system. This makes it possible to fire, even if one of the guns is out of order. In this case, the round is of the same length as when the two guns are being fired. This is achieved with a special automatic mechanism. Both feed systems are provided with an ammunition selection mechanism making it possible to fire two types of shells. The advantage of the unlinked ammunition feed system, in the opinion of the American experts, is the short time required to replenish the unit of fire, which does not exceed 13 minutes.

Rounds of two types of shells are used for firing the M247 Sergeant York: fragmentation and armor piercing-and-fragmentation. The destructive elements of the first shell (with a radio fuse), in addition to the fragments formed when it shatters the hull, are 640 tungsten balls with a fairly great piercing capacity. The range of action of the radio fuse is regulated. It is activated at a distance of around 6 meters from the target when firing at an aircraft, around 2 meters when firing at small objects.

Reports in the foreign press indicate that the features of the American fragmentation shell with radio fuse are significantly better than those of the same kind of shell developed by the Bofors firm of Sweden. The shell's ballistic properties have been improved by increasing the weight of the shell to 980 grams (the Swedish shell weighs 880 grams). The shell's air resistance has been reduced by 6 percent on average by producing a plastic fairing for the nose cone. The metal alloy used has good energy characteristics. The foreign experts state that all of this has made it possible to increase the shell's velocity from 1025 to 1060 meters per second and to reduce its flight time, which is 1.1, 2.5 and 5.96 seconds respectively for ranges of 1,000, 2,000 and 4,000 meters.

The armor piercing-and-fragmentation shell, which is designed for destroying helicopters and lightly armored ground targets, is capable of penetrating a sheet of armor up to 25mm thick. The impact fuse is a delayed-action fuse, which explodes the shell after it has passed through the armored barrier. Its flight time is 1.1, 2.8, 4.4 and 6.6 seconds respectively for ranges of 1,000, 2,000, 3,000 and 4,000 meters.

The fire control system for the M247 Sergeant York includes a combination detection and tracking radar, an optical sight with a laser rangefinder, a telescopic sight, a digital computer (TsVM) and a stabilization system. All of the equipment is installed inside a rotating armored turret, which contains the work stations of the crew's commander and the gunner.

The combination relay (which has a frequency range of 10-20 gigahertz) is a modification of the AN/APG-66 carried on the American F-16 fighter. Two separate antenna subsystems, which operate from a common transmitter (air-cooled) is used in it for target detection and tracking. The antenna for detecting air targets

rotates azimuthally and scans with two radiation patterns turned 180° one from the other. Because of the digital method used for processing the radar signals, the foreign military experts state, the set can identify the type of target (plane, helicopter, missile or ground target). It is also reported that protection against radioelectronic warfare is achieved by resetting the radar frequencies and by adjusting the radiating power to obtain a good "signal/noise" ratio.

Optical and optical-electronic equipment in the fire control system can be used for firing in good weather. In this case the commander searches by means of an optical sight, which can be completely rotated azimuthally and has a field of 20°. When a target is locked-on, the laser range-finder with sight makes it possible to determine the distance to the target with adequate precision (measurement error does not exceed 5 meters for a range of 8 kilometers). The gunner tracks the target by angular coordinates with a telescopic sight. The coordinates thus measured go to the digital computer, where the point of impact of the shell with the target and the lead angles are determined.

It is the opinion of Western experts that the stabilization system makes the M247 Sergeant York the only self-propelled antiaircraft gun presently developed in the capitalist nations, which is capable of firing in motion. Reports in the foreign press indicate that in range tests, targets were destroyed even with the unit moving at speeds of over 40 kilometers per hour.

Production of the M247 Sergeant York was begun in the USA at the end of 1983. According to published information, it is planned to produce 50, 96 and 130 respectively in 1984, 1985 and 1986. The cost of the entire program, including the research, development and the procurement of 618 units, is expected to cost around 9.5 billion dollars.

In addition to the Gepard and Sergeant York all-weather self-propelled artillery guns, which are structurally complex and expensive to produce and operate, the foreign armies also have relatively simple and inexpensive all-weather self-propelled artillery guns. One of these is the American M163 Vulcan (Figure 3), which, along with the short-range Chaparral, is in use in antiaircraft battalions of the U.S. ground forces. It is based on the M113A1 tracked armored personnel carrier, which has a maximum speed of 65 kilometers per hour and a range of 480 kilometers.

The M168 six-barrel 20mm automatic gun with blocked barrels rotated by an electric drive and a common unlinked ammunition feed system for all the barrels is used on this unit. The rate of fire and duration of a round (10, 30, 60 and 100 shots) are regulated by special mechanisms. Rounds of fragmentation-incendiary and tracer-fitted armor-piercing shells are used.

The fire control system of the Vulcan includes a gyro-stabilized sight with a computer device and the AN/VPS-2 radio range-finder (with a range of up to 5 kilometers and a measurement accuracy of  $\pm 10$  meters). Target indication can also be received from an AN/MPQ-49 radar set for detecting low-flying targets, which is a part of the equipment of the mixed Chaparral-Vulcan antiaircraft battalions. A battalion has two Chaparral and two Vulcan batteries (with 24 units of each type).

Reports in the foreign press state that its inadequate firing range, the impossibility of using it in all kinds of weather and the absence of an armored turret and support systems were the reasons why the Vulcan will be replaced with the M247 Sergeant York in the U.S. ground forces. A certain number of Vulcans will remain in the armies of a number of other capitalist nations, however. France's ground forces are equipped with a /30mm paired self-propelled artillery piece/ (Figure 4) developed out of the AMX-13 light tank (with a maximum speed of up to 60 kilometers per hour and a range of 400 kilometers). It is equipped with two HSS831A automatic guns and fire control system which includes the DR-VC-1A radar, telescopic sights for the commander and gunner and an analog computer. The coherent pulsed Doppler radar, which operates on a frequency range of 1710-1750 megacycles, is designed for detecting targets and measuring the distance to them. The duration of the pulse emitted by the set when performing these tasks is 22 and 7 microseconds respectively.

When searching for a target in a preset sector or with circular scanning the radar set is rotated by a hydraulic drive at a speed of 60 turns per minute. The antenna's radiation pattern is cosecant-quadratic with a beam width of 45 and 10° respectively for angle of elevation and azimuth.

After a target has been detected and identified, the turret is turned azimuthally until the circular scan indicator's sighting line coincides with the blip from the target. The gunner locks on and tracks it with a telescopic sight, while the radar goes into the distance tracking mode. Information on the angular coordinates received from the sensors on the gunner's telescopic sight, the speed of the air target and the distance to it, which are measured by means of the radar, are fed into a computer, where the data essential for firing at a future position are derived.

An improved version of the non-all-weather 30mm paired self-propelled antiaircraft artillery piece with improved radar was developed in France in the mid-60's. This unit is set up on the AMX-30 tank, which made it possible to increase the unit of fire hauled and its range. More than 50 of these units were delivered to Saudi Arabia.

At the end of the 70's the Thompson-CSF firm demonstrated an experimental model of the 30mm Drakon paired self-propelled artillery piece.\* It was designed from the West German Marder combat infantry vehicle. An Oeil Vert radar set, which operates on a frequency band of 1710-1750 megacycles, is used for detecting air targets and measuring the distance to them.

Self-propelled antiaircraft artillery pieces are presently being developed in Italy and Japan. For example, the OTO-Melara firm of Italy is developing a /25mm quadruple self-propelled antiaircraft artillery piece/ to fill an order for the ground forces. It is based on a modified version of the American M113 tracked armored personnel carrier. Maximum rate of fire for the Swiss KBA-B guns used in it is 570 rounds/minute per barrel. The unit of fire carried is 600 rounds of KE fragmentation shells. There are 30 rounds of sub-caliber armor-piercing shells with discarding sabot for destroying armored ground targets.

\*For more details on the Drakon self-propelled artillery piece read ZARUBEZHNOYE VOYENNOYE OBOZRENIYE, No 3, 1983, pp 41-42.-Editor

The electronic-optical fire control system in the battalion unit includes a television device for detecting and tracking air targets, an all-purpose (day and night) sight with laser range-finder, a computer and indicators of hull tilt angles. The absence of radar means that it can only be fired in good weather conditions. The foreign press points out, however, that in the future it will be possible to develop a fire control vehicle with radar for detecting air targets, designed to issue target indications to several of these self-propelled anti-aircraft artillery pieces.

Since 1978 Japan has been developing an all-weather 33mm paired self-propelled artillery piece with a fire control system, which will contain radar for detecting tracking targets, a digital computer and a stabilization system. It is planned to use the tracks and undercarriage of the 74 tank as the self-propelled base.

Towed models are also used in the foreign armies along with self-propelled anti-aircraft pieces. The Swedish L70 40mm single-barrel antiaircraft gun and the Swiss GDF-001 35mm paired antiaircraft piece are in greatest use. The fire units of both guns are used in tandem with the Super Fledermaus and Skyguard fire control systems, the gear of which, located in the cab of a double-axle trailer, makes it possible to detect and track air targets and to issue the data necessary for firing.

The /L70 towed antiaircraft piece/ (Figure 5), which was developed in 1951 by the Bofors firm of Sweden, is used by the armies of 11 NATO nations (it has been licensed to six of them) and a number of other capitalist states. More than 6,000 of these pieces and more than 10 million units of the ammunition have been produced. Rounds with HE fragmentation, armor-piercing and sub-caliber armor-piercing (with discarding sabot) shells are used in them.

The L70 antiaircraft gun and the ammunition underwent modernization during the 70's. An improved version, which was given the designation "75," was produced as a result. Rate of fire has been increased to 300 rounds/minute by perfecting the recoil absorber and the ammunition feed and loading mechanism. The capacity of the ammunition storage compartment has been increased from 48 to 96 rounds. The 75 gun is equipped with the BOFI self-contained electronic-optical fire control system and a power feed device located on the carriage (these are used in common by a fire subunit consisting of several guns in the case of the L70). Judging from reports in the foreign press, these improvements have made it possible to use the gun independently during the day and at night (the BOFI system includes a night sight), enhanced firing effectiveness and reduced the amount of time required to go from march to combat status.

In order to improve firing effectiveness, the Bofors firm has developed a fragmentation shell with prefabricated destructive elements, which includes a radio fuse. The destructive elements are round and made of a solid alloy. They are capable of penetrating an aluminum sheet up to 10mm thick. The Western experts believe that the use of this shell makes it possible to successfully destroy not only planes and helicopters, but also certain types of missiles.

The /Swiss 35mm CDF-001 paired antiaircraft piece/ (Figure 6), developed by Oerlikon, is also used in the armies of Austria, Argentina, Brazil, Greece, Egypt,

Spain, Columbia, the Republic of South Africa and Japan (it has been licensed to the latter). The unit consists of two automatic guns, a hydraulic spring recuperator recoil absorber, sights for firing at air and ground targets, guidance mechanisms with electric drives, four box magazines, a saddle and saddle support. The latter is a four-wheel platform with two folding trails and jacks. Sensors for measuring shell muzzle velocity are installed on the gun muzzles. Rounds of fragmentation-incendiary and armor-piercing-incendiary shells are used.

The /American M167 Vulcan towed 20mm 6-barrel unit/ is an organic weapon of the antiaircraft battalions of airborne and air-assault divisions of the U.S. ground forces. A battalion has four batteries with 12 guns each. The gun and the system of fire of the towed M167 are the same as those of the M163. Its weight has been reduced considerably, however, by installing it on a light, single-axle trailer and reducing the amount of ammunition hauled.

The /West German Mk20Rh202, 20mm, paired, towed antiaircraft piece/ (Figure 7) developed by Rheinmetall, is designed for covering air fields, missile launching positions, antiaircraft missile systems and other installations. It can be used for firing at lightly armored ground targets. The unit consists of two automatic guns, and ammunition feed mechanism, laying mechanisms with hydraulic and manual drives, a sighting system, a saddle and a saddle support (the latter has three rests) and a single-axle, wheeled running gear.

The P56 Galileo sighting system, developed in Italy, includes an optical sight with 5-fold magnification and a field of  $120^\circ$ , as well as an analog computer. Data on the range and flight speed of the target are fed by the gunner into the computer device before opening fire manually.

The hydraulic drive for the laying mechanisms makes it possible to rotate the barrels horizontally and vertically at respective speeds of  $100^\circ$  and  $55^\circ$  per sec. Located beneath the gunner's seat, it is operated by an 8hp gasoline engine.

The ammunition belts are kept in boxes (275 rounds in each) on the sides of the saddle. It uses fragmentation-incendiary and armor-piercing shells. It can fire single shots or rounds of 15-25 shots per barrel. The armor-piercing shell has a steel core, which makes it possible to penetrate armor 32, 34, and 8mm thick respectively at a range of 100 meters and at angles of impact of  $0.30$  and  $60^\circ$  (from the normal).

In 1983 the Hellenik Arms Industries developed the /Artemis-30 towed antiaircraft piece/ (Figure 8), which, the foreign experts believe, has fairly good operational indices and reliability, while being of relatively simple design. Prefabricated subsystems and devices previously developed by other West European firms were extensively used to build the unit and its fire control system. Two automatic guns mounted on a towed 30mm, paired antiaircraft piece, which was developed by the Mauser firm of West Germany, have a common ammunition feed mechanism and are on a moveable foundation which can be rotated in a complete circle on the double-axle carriage. When the guns are fired, the carriage is jacked up. Rounds used in the American CAU-8A aircraft cannon are used in it. They contain the following types of shells: HE fragmentation, armor-piercing and incendiary, and sub-caliber armor-piercing with discarding sabot. The Greek experts propose using a new triple-base metal compound to increase the firing range by 300-400 meters. This will require a stronger case. It is therefore planned to make the cases of steel and not aluminum.

The firing of the Artemis-30 antiaircraft pieces (each one has an optical sight) can also be performed by means of a fire control system which will include a television-optical sight (with a  $3.6 \times 2.7^\circ$  field) with a silicon vidicon, an infrared tracking device, a laser range-finder and a computer. All of the system's equipment will be housed in a van mounted on a double-axle wheeled trailer.

According to the foreign press, barrelled antiaircraft artillery is presently continuing to be improved in the capitalist states. The development of new models is planned, along with modernization of antiaircraft pieces already in use, their systems and fire control equipment. The foreign military experts consider the development of shells with control gear making it possible to adjust their flight path, and the development of guns with electromagnetic acceleration of the shells to hypersonic flight speeds to be among the promising directions for enhancing the firing effectiveness of antiaircraft artillery. It is stated, for example, that the effective firing range of the M247 Sergeant York can be increased by 50 percent by equipping the 40mm shell with a radar sensor in the millimeter range and a control system.

The NATO nations are studying the possibility of developing a combination missile and artillery antiaircraft piece. For example, the American firm of General Electric has developed an experimental model of a towed unit, the GEMAG-25 (General Electric Mobile Air Defense Gun), as one version of the light antiaircraft weapon designed for use in the Rapid Deployment Force. It is equipped with radar, the Gau-12 25mm gun (with a rotating block consisting of five barrels) and four launchers with Stinger antiaircraft guided missiles. An improved version was produced in 1983, which, unlike its predecessor, has six Stinger launchers and an operator's cab, as well as a wheeled carriage of altered design. This piece is presently undergoing testing.

COPYRIGHT: "Zarubezhnoye voyennoye obozreniye", 1985.

11499

CSO: 1801/166

7 May 1985

## FOREIGN MILITARY AFFAIRS

## MANEUVERING IN AERIAL COMBAT EXAMINED

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 1, Jan 85 (Signed to press 11 Jan 85) pp 53-57

[Article by Col V. Petrov, candidate of military sciences: "Maneuvering in the Air Battle"]

[Text] According to the views of NATO's military leaders, one of the main missions facing the aviation of that aggressive imperialist bloc is the mission of gaining and retaining air superiority. This is considered to be an absolute requirement for the conduct of combat operations by all branches of armed forces. It can be accomplished by destroying the enemy's aircraft in the air, as an example. In addition, the effectiveness of operations by the aviation when it is performing other missions also depends in great part on the ability of the crews to conduct aerial combat.

The USA and other nations of the North Atlantic alliance are therefore very thoroughly studying the use of aircraft in local wars in Southeast Asia and the Near East, as well as in other military conflicts. By analyzing this experience and considering the advantages and the shortcomings of modern combat aircraft and their airborne equipment, Western military experts have worked out a so-called aerial combat formula.\* It reflects the degree to which various factors, mainly the capabilities of the aviation equipment, affects the shaping of tactics and the achievement of success in a battle. It also takes into account the maneuverability factor, which combines such indicators as thrust-weight ratio, specific wingload and the extent of the wing's lift-increasing effect. The foreign press states that it is the pilot's mission in an air battle to realize the advantages of his equipment. In addition, he must prevent the enemy from taking advantage of its weak aspects. A great deal of attention is therefore devoted to mastering the tactical elements, especially maneuvering, when pilots are trained to engage in air battles abroad.

The NATO experts have always considered the target's rear half-sphere to be the preferred area for possible attacks in close combat, within which guided missiles with infrared homing heads and cannons are employed most effectively. This area is depicted in the form of a cone with an angle of 40° from the aircraft's longitudinal axis at the apex and an altitude of around 2 kilometers (Figure 1).

\*For a more detailed discussion of this formula, see ZARUBEZHNOYE VOYENNOYE OBOZRENIYE, No 1, 1984, pp 47-54, and No 2, pp 53-58.--Editor

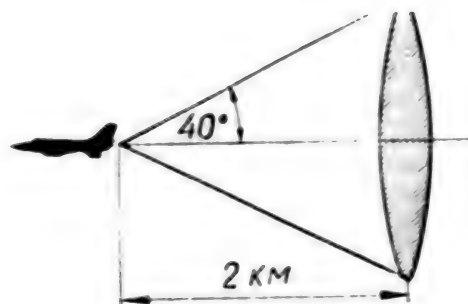


Figure 1. Area of possible attack by enemy aircraft with airborne guns and short-range guided missiles

Up to the present, aerial combat tactics in the air forces of the NATO nations have been based on two extremely important principles. In the first place, it is considered inadmissible to permit an enemy fighter to enter the area of possible attack of one's aircraft. In the second place, it is recommended that one enter that very area around the enemy by maneuvering. The foreign military press stresses the fact that many of the main types of maneuvering have actually remained the same as they were during World War II. Their parameters have changed substantially, however. New types of maneuvering have also come into being as modern fighters have become a part of the armament.

Western experts divide maneuvers in aerial combat into three groups: defensive, offensive and neutral. Breaking away from an air enemy and the "controlled roll" with a large turning radius at maximum acceleration are considered to be typical defensive maneuvers. Offensive maneuvers include the "rapid double bank" (high-speed Yo-Yo), the "roll" with subsequent lagging from the pursued aircraft (lag pursuit roll) and the "slow double bank" (low-speed Yo-Yo). Neutral maneuvers include such forms as the "scissors" (on horizontal and vertical planes) and a combination of "scissors" and "roll."

The main objective of maneuvering is to occupy an advantageous position with respect to the enemy. In close aerial combat the maneuvers are a system of horizontal and vertical, as well as coordinated and boosted turns. The foreign experts stress the fact that in working out standard maneuvers, one must take into account the aircraft's ability to execute them without any loss of power (or at least with minimal loss), as well as the following main factors: armament, electronics, maneuverability and invulnerability (individual defense).

According to reports in the Western press, the fighters are now armed with "air-to-air" missiles, which make it possible in principle to attack a target from any aspect. They include the Sparrow (USA) and Skyflash (Great Britain) as well as a number of other missiles equipped with semi-active radar homing heads (GSN). A precise and stable radar signal reflected off the target is required for launching and guiding them, however. The capabilities of guided missiles with passive infrared homing heads have been expanded. Among other things, the American AIM-9L Sidewinder missile outfitted with an improved homing head can be launched in the zone of possible attack at a 150° angle at the apex from the longitudinal axis of the target aircraft.

The foreign experts note that air battles, which have always been particularly complicated to conduct, have become even more complicated. In order to avoid being destroyed, it is no longer enough merely to prevent the enemy fighter from entering the rear half-sphere of one's aircraft, since the zone of possible attack has been expanded considerably and missiles can be launched effectively from practically any aspect. The range of the weapons has also increased significantly. Loss of the enemy aircraft from the pilot's field of view at a distance of 11-13 kilometers can result in destruction, whereas this would not have been highly important a few years ago.

According to the British magazine *FLIGHT*, the actions of a fighter pilot in the contemporary situation are made significantly easier by the installation of improved radioelectronic equipment such as radar and radioelectronic warfare equipment on board the aircraft. The former provides for automatic radar lock-on and tracking of air targets. The latter detects enemy launchings of missiles and generates interference for their homing heads. All of this enhances the fighter's survivability, but the outcome of the battle still depends ultimately upon the fighter's skill.

The foreign military press reports that one of the main directions for improving the fighter's characteristics in recent years has been that of increasing not the maximum flight speed, but maneuverability, mainly by increasing the thrust-weight ratio and improving the wing's lifting features. The F-16 Fighter, for example, can approach at great pitch angles for occupying an advantageous position for the attack, while retaining the controlled flight mode (the angle can be altered 55° instantaneously). The British Harrier aircraft possesses the same capabilities as a result of altering the thrust vector direction.

The NATO experts say that the new capabilities of "air-to-air" class guided missiles and their carriers have led to the problem of identifying aircraft at great distances. Before launching a missile at a target at intermediate or long range, the fighter pilot must be certain that he is attacking the enemy and not a friendly aircraft. They believe that it is dangerous for a modern fighter to approach the target in order to identify it, but that he will have to do this in aerial combat. Several methods are proposed for solving this problem. The simplest one is an attack by a pair of aircraft, one of which flies by the target at great speed and identifies it, while the other remains at a great distance from the target in a state of readiness to launch missiles. It is pointed out, however, that this tactic will require the use of an additional number of aircraft. Furthermore, it can lead to loss of the element of surprise, which is also very important.

According to reports in the foreign press, a new identification system is being developed to resolve this problem in the NATO nations. The military experts of that bloc point out, however, that even this kind of equipment does not ensure unequivocal determination of the aircraft's origin, since the absence of a response to the challenge could indicate the approach not just of an air enemy, but of a friendly aircraft with a malfunctioning identification system.

Experiments with the visual identification of air targets, using optical instruments coupled with the fighter's airborne radar, are being performed in Great Britain's military aviation. Such devices enlarge the image of an approaching aircraft and in the opinion of the British experts, will prove to be extremely effective.

The operating tactics of modern aircraft abroad are being designed on the basis of the above mentioned and certain other factors. Certain Western specialists propose that fighters can employ various types of maneuvering and tactical procedures, depending upon the situation which develops in the air battle, particularly in close combat. Certain of them are shown below from information published in the Western press.

The "breakaway" is used by a fighter which has lost its chance of succeeding in the air battle, in order to prevent the enemy from entering the zone of possible attack of his aircraft. It is performed with maximum acceleration and maximum thrust. An enemy attack may be thwarted by successfully performing this maneuver. The latter may carry out a countermaneuver.

Figure 2, on the left, shows the defensive maneuver "controlled roll" with a great turning radius and maximum acceleration. Its main objective is to deceive an attacker approaching the fighter at great speed. At a certain point the pilot takes his aircraft into a "controlled roll" with great turning radius and maximum possible acceleration. The fighter's flight speed gradually drops. Because of the great speed of approach, the enemy is simply not in a position to follow the attacker and shoots ahead. The aircraft exchange rolls after the maneuver has been completed. The Western press points out that it is highly important for the pilot of the maneuvering aircraft to correctly calculate the time for the beginning and the end of the maneuver, since a tardy pull-out from the "turn" may result in destruction, and if the maneuver is begun too early, the enemy can perform a zooming maneuver upon detecting it, thereby retaining an advantageous position for aerial combat.

The Western experts consider the "turn in a zoom" (Figure 2, Right) to be a complex type of maneuver. It is performed by a fighter approaching a maneuvering target at great speed or at a large aspect. The maneuver prevents the target from "shooting ahead." While gaining altitude, the fighter loses speed, and this reduces the turning radius in the upper part of the maneuver path.

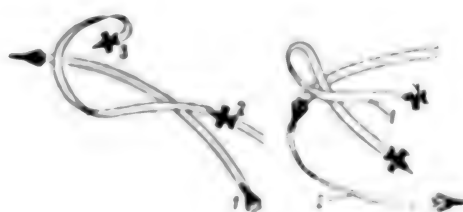


Figure 2. Left--"controlled roll" maneuver with large turning radius and maximum acceleration (1. enemy, 2. fighter before beginning the maneuver, 3. fighter after completing the maneuver); right--"turning in a zoom" maneuver (1. fighter's flight path, 2. target's flight path)

The magazine FLIGHT reports that in an air battle between aircraft with identical thrust-weight ratios and angular turning speed, a "semi-roll" with chandelle can be employed (Figure 3, left). It permits one of the aircraft to gradually occupy a more advantageous position than that of the other. The fighter's kinetic energy is increased by flying downward. The pilot then executes a "semi-roll" with a subsequent turn continuing until the target pulls out of the maneuver.



Figure 3. Left--"semi-roll" maneuver with chandelle; right--"roll" with subsequent lag (1. attacking fighter's flight path, 2. flight path of aircraft attacked)

On the right side of the same drawing is shown a "roll" maneuver with subsequent lag from the pursued aircraft. It was extensively employed by pilots of the Phantom fighters, which could execute a turn at great speed. The purpose of the maneuver is to enter the upper part of the enemy's rear half-sphere at a range of around 2 kilometers and with a greater turning radius than the enemy's. The foreign press points out that the attacking aircraft can hold this position a fairly long time (if it has the advantage of speed). The value of this maneuver lies in the fact that it is difficult for the enemy to observe the attacking fighter, while it is relatively easy for the latter to make a "roll" with an altitude gain and to take up an advantageous position for executing the attack. It is recommended that this maneuver be performed when the battle is occurring at too close a range and it is advantageous for the attacking aircraft to withdraw as far as possible from the target to make better use of its weapons.

The Western military experts recommend the "scissors" or "snake" (Figure 4, left) when a pilot detects a target flying a course parallel to his. The fact is stressed that if the pilot decides to accept the challenge, he will most frequently be forced to employ precisely that maneuver. As each of them makes the turn toward the enemy at minimum speed, he will attempt to fly his aircraft into the rear half-sphere of the other. Skillful piloting and use of the flaps and airbrakes of one's aircraft are considered to be highly important.

The combination of "scissors" and "roll" (Figure 4, right) is a more complex version of this maneuver. It involves a constant descent by the two aircraft, which turn relative to each other and to their longitudinal axes. The magazine FLIGHT stresses the fact that defeat will be the lot of that one which is the first to pull out of the dive, if the distance between the aircraft at that moment permits the use of the weapons--the guns, for example.

The foreign press reports that modern aerial combat can be not simply a duel, but a group battle. A pair of aircraft, spread 2 to 5 kilometers apart on the front, is the primary tactical unit in the fighter aviation of the NATO nations' air

forces. In the opinion of the NATO military experts, this arrangement provides the best conditions for mutual support, if an enemy aircraft makes an unexpected attack, and can be employed in flight on the route, while patrolling and during the execution of other missions in anticipation of an air battle. They maintain that an enemy aircraft can be rapidly identified and destroyed while retaining the integrity of the battle order. In such a case the priority mission is one of detecting the enemy aircraft, turning toward it, locking it in a "fork," identifying it and attempting to foresee its actions.

The following is considered to be one of the simplest methods of accomplishing the mission: heading one's aircraft toward the enemy so as to fly past it at minimum range, identify it and report to the lead aircraft. The foreign experts point out that the pilot of the oncoming aircraft ordinarily banks to determine what has flashed by. At that time the second fighter turns and head toward the enemy's rear (Figure 5, left). If the latter detects the pair of fighters approaching it in time, he can make a turn toward one of them. If the aircraft has been correctly locked in a "fork," however, the advantage will be with the fighters, since they can turn in opposite directions, and the fire from one of them may reach the target. The Western press calls this maneuver the "sandwich" (Figure 5, right)



Figure 4. Left--"scissors" maneuver; right--"scissors with roll"  
(1. fighter's flight path,  
2. target's flight path)



Figure 5. Left--the "lock-on in a fork" maneuver by a pair of fighters, with one of them flying past the foreign aircraft (1. lead fighter; 2. wingman, 3. enemy aircraft); right--"sandwich" maneuver (1 and 2. fighters, 3. enemy)

If the enemy manages to avoid being locked in the "fork" (Figure 6, left), the fighter pilots will have to decide whether to continue the attack or withdraw from the battle and continue on their route. This depends upon the missions assigned them and the existing situation.

The magazine FLIGHT points out that in an air battle, especially a meeting battle, the battle order of the aircraft may take almost any form. It is felt that the mutual support principle can be disregarded, and the "front" battle order transformed into a "bearing" order. They may use the "eye-gunner" maneuver for attacking the enemy (Figure 6, right). Its objective is to identify and destroy the aircraft within a minimal amount of time, without permitting it to penetrate deeply into the air space being monitored. The first fighter (the "eye") performs the identification, and the second ("the gunner") destroys it.



Figure 6. Left--the enemy has noticed the fighters in time and evaded combat by maneuvering correctly (1. fighters, 2. enemy); right--"eye-gunner" maneuver (1. fighter performing identification--"eye," 2. fighter destroying target--"gunner," 3. enemy)

It is the opinion of the Western military experts that in an air battle between two fighters with identical technical specifications and armed with short-range guided missiles, the outcome depends in great part on the reciprocal positioning of the aircraft at the initial moment. If the total sighting angles of the two aircraft--that is, from the attacker to the target and from the target to the attacker--is  $180^\circ$  (the aircraft are on parallel meeting courses), it is impossible to fire the missiles effectively. When these angles are different and the attacking fighter approaches the tail of the target, there is an increased possibility of shelling it.

The foreign press reports that the results from the modeling of an air battle between fighters with similar characteristics on a bench simulator at the Aviation Scientific Research Institute of Great Britain's Air Force in the city of Wharton showed that the probability that the battle would end in favor of the attacking side increased with an increase in the angle of approach of the missiles. The same effect is produced by expanding the boundaries of the sighting angles when firing missiles at the front half-sphere. The foreign experts concluded, however, that when modern fighters are armed with all-angle missiles for close aerial combat, increasing the aircraft's acceleration specifications by creating a greater reserve engine capacity has a limited effect. The dominant factor, in their view, is the ability to execute a banking maneuver with maximum acceleration. According to reports in the foreign press, the USA and other members of the NATO bloc have developed a considerable number of types of maneuvers and technical procedures for engaging in aerial combat, taking into account the development of aviation technology, which are being tested in the combat training process. A great deal of attention is being given to developing in the pilots the skills necessary for selecting and performing them rapidly and correctly, as well as for withstanding prolonged acceleration.

COPYRIGHT: "Zarubezhnoye voyennoye obozreniye", 1985.

11499

CSO: 1801/166

## FOREIGN MILITARY AFFAIRS

### USE OF PHASED ANTENNA ARRAYS IN MODERN RADAR

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 1, Jan 85 (Signed to press 11 Jan 85) pp 58-62

[Article by Lt Col V. Pavlov and S. Grishulin: "Phased Antenna Arrays of Modern Radar Stations"; passages enclosed in slantlines printed in boldface]

[Text] The use of phased antenna arrays (FAR) as antennas for radar stations (RLS) for most diverse purposes has been receiving a lot of attention abroad in recent years. In the opinion of the foreign military experts, one of the main reasons for converting from conventional antennas with mechanical scanning to FAR with electronic scanning is a desire to produce multipurpose radar stations with inertia-free control of the radiation pattern's position, which makes it possible within a real timeframe to perform the missions of detecting, tracking and identifying a large number of targets in the air and in outer space, as well as to perform a number of other functions--the transmitting of commands to guided missiles, for example.

The modern FAR used in the radar stations of the NATO nations are made up of a number of components consisting of radiating elements in the form of various types of oscillators, open terminals of waveguides, slots and so forth, which generate appropriately phased signals.

Inertia-free control of the radiation pattern's position makes it possible to scan an area according to set programs, to achieve optimal processes of detecting signals against a background of various kinds of interference, to reduce time and energy outlays, and to increase the handling capacity of radar stations by simultaneously generating a large number of rays. The foreign experts believe that two methods of tracking targets can be successfully combined in radar stations with FAR: in the first method, coordinates are measured without halting the scanning, while in the second, the rays are sent out to targets, the positions of which have been extrapolated from the results of preceding measurements, at moments in time set by the program. The coordinates in the area of the extrapolated points are determined with the prescribed accuracy in the multi-pulse mode by means of total-difference signal processing. Error in the measurement of angular coordinates can amount to 0.02 of the radiation pattern width.

According to reports in the Western press, practical realization of the advantages of the FAR only became possible after leading firms of the NATO nations developed and mastered a new technology for the production of electronic equipment and

developed such components as phase shifters, power dividers, amplifiers and generators which operate in various wave length ranges, as well as high-speed computers.

The foreign experts differentiate all types of FAR mainly according to the radiating element absorption principles. Specifically, in the classic arrangements of the antenna arrays, the energy emitted is generated by one or several powerful sources and is distributed among the FAR elements by means of power dividers, in the circuits of which phase shifters are used for controlling the position of the radiation pattern. The modular arrangement principle is being encountered more and more extensively of late in foreign use. High-frequency energy is generated by a large number of small, weak sources, each of which directly absorbs its own radiating element or group of elements. The fact that the output amplifiers in the transmitting part of these modules, as well as the preliminary amplifiers in the receiving part are located directly next to the radiating elements, makes it possible to operate at considerably lower power levels and as a result, to reduce to a minimum losses of energy from the radiating elements and the radar signals received.

The so-called classic arrangement of the FAR requires a relatively small number of power sources. The need to use a system for distributing the energy among a large number (from hundreds to tens of thousands) of radiating elements results in fairly large losses of high-frequency energy, and additional power must be generated to make up for them. As a result, an extremely large amount of energy is required for servicing the entire target flow in modern radar stations, which are occupying an increasingly important place in the military systems.

The Western experts calculate that as a result of the large number of elements, it costs more to generate the essential quantity of energy with the modular structuring of the arrays. Because it becomes possible to operate at a lower power level in FAR with the modular structure, however, it is possible not only to reduce total losses, but also to reduce the size of the power sources. In general, this may be preferable for the construction of multipurpose radar stations, especially long-range ones.

The modular principle for constructing FAR depends to a significant degree upon the technology for producing circuits with solid-state elements and requires radar operating modes with a high coefficient of charge, whereby the length of the radiated pulses must comprise 20-30 percent of the repetition period. It is the opinion of the foreign experts that this requirement makes it necessary to coordinate the energy of the signals emitted with the distance to the targets and with the size of their zone of dispersion (EPR). Furthermore, as a result of the radiation of pulses of long duration, the minimal effective range of the radar systems is limited, which in turn necessitates the probing of the space with pulses of lesser duration and alteration of the tracking period, proceeding from the requirement that the distance to the targets be positively determined.

The classic arrangement of FAR has been realized in the AN/FPS-85 and PAR long-range radar stations used by the American military, among others.

The /AN/FPS-85 FAR Station/ consists of transmitting and receiving arrays with the plane slanted  $45^\circ$  relative to the vertical. This makes it possible to scan a sector with an angle of elevation of  $0-105^\circ$  from the site. The ray can be deviated  $\pm 60^\circ$  relative to the normal plane of the array, which provides for a scanning sector of  $120^\circ$  by azimuth.

The transmitting array for this radar station is in the form of a square around 30X30m, on which 5,184 (72X72) radiating elements are arranged. These are resonant dipoles with passive director, which function with vertical polarization. The elements are distanced from each other by around 0.55 of the wave length, which is approximately 40 centimeters for the working range of emitted frequencies. The FAR aperture provides even amplitude distribution of the electromagnetic field, which makes it possible to form a radiation pattern 1.4° wide. Every FAR element absorbs high-frequency energy from its source. Tetrodes with a pulse power of 10 kilowatts are used as the source. They comprise the basis of the transmitting modules, each of which is 173X228X738mm and weighs 23 kilograms.

The receiving array is in the shape of a regular octagon with a definition area of around 60 meters and contains 19,500 cross-shaped dipoles (the figure is set at 39,000 elements in certain Western press sources). All of the elements are assembled into sub-arrays, which are connected to receiving modules 76X248X437mm in size and weighing 5.4 kilograms.

In the search and detection modes, the FAR forms a matrix of nine rays 0.8° in size and intersecting at the level of 0.4°. Only the central and four criss-crossing rays are activated in the target tracking mode, which makes it possible to apply the monopulse method of determining coordinates. Specialized electronic computers control the FAR's operating modes. The parameters are kept within the prescribed limits by maintaining a constant temperature with a precision of  $\pm 3^{\circ}$  C. It is also reported that this structure of the FAR for the AN/FPS-85 radar is capable of withstanding winds of up to 230 kilometers per hour.

/In the FAR of the PAR station/, the very same elements are used for transmitting and receiving radar signals. The plane of the array is around 30 meters in size and is inclined 30° from the vertical, which makes it possible to scan an area with an angle of 0-90° from the site. The ray's deviation from the horizontal plane, depending upon the operating mode, can be 60-70° relative to the normal plane of the array, and an area between 120-140° by azimuth can be scanned.

The FAR aperture contains 6200 elements which functions with horizontal polarization. Traveling-wave tubes with a pulse strength of 1.1 kilowatts are used as the source of high-frequency energy in the radar station. The phasing of this signal is achieved by means of four-digit digital phase shifters. The front of the antenna array is believed to be capable of withstanding excess pressure of around 2.1 kilograms per square centimeter.

The new generation of phased antenna arrays for radar stations are mainly modular. The /FAR of the AN/FPS-108 Cobra Dyne station/, for example, consists of 96 sub-arrays, each containing 160 active elements connected in the transmitting mode to the outlet of a traveling-wave tube with a pulse strength of 160 kilowatts, which is evenly distributed among them. In the receiving mode the sub-array outlets are connected to parametric amplifiers. The formation of the field distribution function by Taylor's law, which makes it possible to significantly reduce the radiation level in the side vanes, is achieved with an uneven distribution density for the active elements at the center of the FAR and on its periphery. The process is also assisted by the presence of a large number of passive elements (19,408). The FAR is around 29 meters in size, which makes it possible to form a radiation pattern 0.6° wide in the operating frequency range (1175-1375 megacycles). Unlike this

FAR, the /array of the AN/SPQ-11 Cobra Judy radar/ contains only 12,288 active elements and has a diameter of around 7 meters.\*

It is the opinion of the foreign experts that the /AN/FPS-115 Pave Paws/ is one of the radar stations which embodies all of the latest achievements in FAR development. The principle of construction entirely with solid-state elements has been realized in it. The radar station has a total of 1,792 receiving and transmitting modules, each of which is 30X20 centimeters. They are connected to active elements (Figure 1 /graphics not reproduced/) combined into 56 sub-arrays (32 elements each) arranged over an area of around 400 square meters on the array plane, which corresponds to a FAR with a diameter of almost 22 meters. The 885 passive elements are also located in this space. The sub-arrays are not identical in size.

Special coaxial joints are used for connecting the receiving and transmitting modules to the radiating elements, which make it possible to increase tolerance in the manufacture of the array's mechanical parts. Powerful transistors are used as the element base (there are 3500 in the radar station). They have a junction temperature of no more than 140°C. The transmitting and receiving parts of the modules are on separate supports, and they can operate an average of 220,000-250,000 hours without breakdown. The foreign experts estimate that the parameters of the Pave Pos radar station is not significantly altered if up to 200 receiving and transmitting modules stop functioning.

According to reports in the foreign press, the diameter of this station's FAR can be increased to 31 meters, which would permit it to hold twice as many elements, and all of the elements can be made active for purposes of increasing the pulse emission and average power. At the present time the pulse power is 585 kilowatts, the average power is 145 kilowatts, and the range for detecting targets with an effective dispersion area of 10 square meters is as great as 5500 kilometers. The Western experts believe that if the number of active elements is increased to 5,354, it can detect a target at the same range with a smaller effective pulse dispersion area. Two identical FAR's set up at a certain angle to each other in the radar station provide for scanning a sector 240° in azimuth. The scanning sector angle is 82° at the site (from 3 to 85°).

The /AN/TPS-59/ground-based transportable station/ designed by the American General Electric company is another example of a radar detection station with the FAR made totally of solid-state elements. Its antenna system is a flat FAR consisting of a center part containing the electronic blocks and two side parts connected to the center by means of flexible, high-frequency coordinating elements, which make it possible to transport the antenna folded up (Figure 2). In its deployed (combat) state, it is 4.6X9.2m, which makes it possible to form a radiation pattern on an azimuthal plane of 3.2°, and an angle-of-elevation of 1.7°. The radiation pattern of the FAR is controlled with electronic scanning by the main ray in a sector with an angle of elevation of 0 to 19°, with the antenna rotated mechanically for azimuth.

The FAR of the AN/TPS-59 station consists of 54 horizontally arranged linear sub-arrays, each of which contains 24 radiating elements connected directly to the receiving and transmitting antenna modules. The radiating elements are oscillators

\*For a more detailed discussion of the Cobra Dyne and Cobra Judy radar stations read ZARUBEZHNOYE VOYENNOYE OBOZRENIYE, No 1, 1984, pp 59-62.--Editor

in waterproof (sealed) shells, which are supported by special partitions forming the waveguide powerline. The American experts believe that this design has made it possible to provide electrical insulation between the radiating elements, to reduce the spread of the antenna system and reduce to a minimum the possibility of its icing-up. The maximum stress on the FAR is around 17 kilograms per square meter at a wind speed of up to 130 kilometers per hour.

The transmitting module of the FAR (there are 120 in the radar station) consists of a transistor amplifier with an average output power of 50 watts (the station's average emitting power is around 6 kilowatts). These modules produce two kinds of signals--simple pulse signals for detecting targets at short range and pulses with linear frequency modulation for ranges of more than 180 kilometers. The output stages of the transmitting device and the pre-amplifiers in the receiving section of the radar station are connected with the radiating elements by three feeder power systems, which maintain contact with the summation and difference channels, as well as with the channels used for distributing the signals among the antenna sub-arrays of the FAR.

The antenna switches, developed on the basis of five-stage filters, protect the pre-amplifiers of the receiving modules and the responders, which are on band lines filled with air. This makes it possible to reduce actual losses in the transmission and reception to 0.38-0.75 decibels.

The operating modes of the radar station are controlled by means of the AN/UYK-7 electronic computer, which makes it possible to simultaneously detect and track up to 500 targets with an effective dispersion area of 1 square meter at a range of up to 550 kilometers. The probability of correct detection in one turn of the radar antenna is 0.7, with an average of five false alarms.

Micro-band devices on 52.6X44.5X12.7mm (polikorovyye) supports are used as the phase shifters. They provide for a phase adjustment precision between  $1.2^{\circ}$  and  $0.4^{\circ}$ . The entering losses amount to no more than 2.6-3.12 decibels. The FAR's receiving modules are set on micro-band lines with fluoroplastic dielectric supports, which provides actual amplification of 23-24.5 decibels with a noise factor of 2.2-2.4 decibels.

It is felt that the modular design of the FAR provides the AN/TPS-59 station with a high degree of operating reliability and permits it to operate even if certain modules stop functioning. In tests with around 50 percent of the transmitting modules not functioning, the radar station was able to track A-4 Skyhawk ground attack aircraft at a range of up to 165 kilometers with the necessary accuracy.

The ground-based /GE-592 (Figure 3) and AN/FPS-117 stations/ have now been developed out of the AN/TPS-59, which can operate with minimal maintenance or none at all at sites with harsh climatic conditions--in the USA's Alaskan Air Defense Region, for example.

The phased arrays of these radar stations are modeled after the FAR of the AN/TPS-59 station and are 4.2X4.2m when deployed, which makes it possible to form a radiation pattern  $2^{\circ}$  wide on the azimuthal and elevation planes. The FAR consists of 44 horizontally positioned, linear sub-arrays, each of which contains 36 radiating elements directly linked by antenna switches to the transmitting and receiving

modules. The transmitting module is a device which includes one preliminary and six terminal amplifiers with transistors. The module's average output power has been increased by 100 watts.

The American experts believe that a high level of operational reliability has been achieved for the GE 592 and AN/FPS-117 radar stations by using a built-in monitoring system, as well as two parallel-operation electron computers. Although these stations function in an automatic mode, they include work stations and control panels for operators, designed for using the radar stations in combat conditions and in a situation of radio counteraction. The radar station's system for selecting moving targets makes it possible to detect air targets against the background of the earth's surface and provides for increasing the signal /interference ratio by 50 decibels when operating in a situation of interfering reflections off local objects and around 30 decibels in a situation of interference from hydrometeors.

Judging from reports in the foreign press, work in the area of FAR development is also being carried out on the use of methods of frequency control of the radiation pattern. It is believed that the designing of FAR's for such radar stations is simpler and less expensive than when the phased method is used for controlling the radiation pattern, and when solid-state technology and modular construction are used for the antenna system.

The /S.320 station/ is an example. It is planned to use this station in the air defense systems of a number of European NATO nations, as well as in the base system for creating the AR320 radar station for Great Britain's air defense system. Its antenna array is a flat 5.1x4.3m FAR, which operates on the 10cm waveband. The surveillance of a space is accomplished with frequency scanning of the radiation pattern on the elevation plane by resetting the carrier frequency, with mechanical rotation of the antenna system on the azimuthal plane.

The FAR of the S.320 station consists of 76 horizontal, linear sub-arrays arranged vertically, with one of the sides of each connected to a zigzagging waveguide arranged along the vertical side of FAR. The features and dimensions of this waveguide define its capabilities for controlling the radiation pattern in the elevation plane. The main function of the waveguide is to distribute the high-frequency energy among the linear sub-arrays. The design of the power waveguide, the foreign press states, makes it possible with the FAR vertical, to distribute the energy and shape the radiation pattern in accordance with Taylor's law, with the level of the side vanes at around 30 decibels.

The transmission of the high-frequency energy from the power waveguide to the linear sub-arrays is accomplished by means of slotted communication elements located in the narrow part of the waveguide. The dimensions of these elements are coordinated with the amount of high-frequency energy entering the linear sub-arrays. Inductive diaphragms located within the power waveguide are used as the coordinating elements. Each of the sub-arrays consists of a waveguide around 4.3 meters long, with 30 radiating elements in the form of slotted oscillators located in its narrow portion. Electronic control of the radiation pattern for angle of elevation is accomplished by resetting the frequency of the radar station's transmitter within a range of 2900-3100 megacycles. An amplifier on a travelling-wave tube with grid control is used as the transmitter's output stage. Preliminary amplification of the signal is accomplished by an amplifier made of solid-state elements.

Antenna systems in the form of FAR's for ground radar systems have recently started to be used not only in stationary, long-range radar, but also in mobile sets designed for detecting low-flying targets. For example, the /TRMS station/ (Figure 4), which was developed at the end of the 70's by the AEG Telefunken (FRG) and Hughes (USA) firms, has a 2.5X2.9 meter antenna array, which forms a radiation pattern  $1.4^{\circ}$  wide for azimuth and  $1.6^{\circ}$  for angle of elevation. The body of the FAR is installed on a telescopic mast at a  $15^{\circ}$  angle relative to the vertical and makes it possible for the radar station to scan a space of  $0-45^{\circ}$  for elevation electronically, and azimuthally, by mechanical rotation of the antenna at a speed of 3-12 turns per minute. Programmed alteration of the antenna's rotating speed for azimuth during one rotation of the FAR is also provided for.

Depending upon the angle of elevation, the cross section of the main ray in the FAR's radiation pattern changes from round (at small angles of elevation) to elliptical, and the vertical width of the ray can increase 8-fold. This, in combination with alteration of the repetition frequency for the sounding pulses, makes it possible to achieve rapid renewal of target data within the radar station's scanning zone.

The FAR contains around 4,000 radiating elements. The transmitter's output stage is set on amplatron. The phase of the radiated signal and the radiation pattern on the elevation plane are controlled by means of ferrite phase shifters located in the array surface. The antenna for the identification system and the antenna for the channel for suppressing emissions received by the side vanes of the antenna array, azimuthally and by elevation angle, are located on the radar system's antenna column along with the main FAR. The functioning of the TRMS radar station is accomplished by means of the universal AN/UYK-15 minicomputer, which also processes the radar information received.

COPYRIGHT: "Zarubezhnoye voyennoy obozreniye", 1985.

11499

CSO: 1801/166

FOREIGN MILITARY AFFAIRS

'DOBAS-84' EXERCISE DISCUSSED

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 1, Jan 85 (Signed to press 11 Jan 85) pp 69-70

[Article by Maj M. Men'shikov: "The DOBAS-84 Exercise"]

[Text] In the spring of 1984 an exercise by NATO's Joint Air Forces in the Central European Theater of Military Operations was held for the first time in the FRG. It involved the activation and support of dispersion airfields and was called DOBAS-84 (DOBAS stands for Deployment Operation Base Activation and Support).

The objective of the exercise was to test plans for the dispersal and organization of all types of support for the combat operation of bloc nations during a period of "danger" and at the beginning of a war. Staffs, tactical and transport air subunits, air defense personnel and facilities, and rear service agencies of the air forces of the FRG, the USA, Great Britain and the Netherlands took part, as did personnel and facilities of certain West German civilian departments. The exercise was directed by Lieutenant General E. Eimler, commander of the FRG Air Force.

The following missions were practiced in DOBAS-84: the transfer of tactical aircraft to reserve military and civilian air fields, as well as to specially equipped sections of the Autobahn; to test the capabilities of combat and transport aircraft for making flights from shortened and partially damaged runways; to organize air defense and ground defense of alternate air fields and technical air field and rear service support for the air subunits based there; to assess the capabilities of rear service agencies for supporting the operations of dispersal air fields in conditions as realistic as possible and to check interaction among them and between them and civilian organizations.

A squadron of Alpha Jet aircraft of the FRG Air Force was relocated at the alternate military air field Diebholtz, which has a runway of nonstandard length, and combat and transport aircraft of the air forces of the FRG (Tornados, Alpha Jets and C-160s), the USA (F-15s, A-10s and C-130s), the Netherlands (NF-5As and F-16As) and Great Britain (Jaguar-GR.1s) were received and serviced for 3 weeks on a 2100m section of the Alchon-Sage Autobahn. A demonstration of the functioning of both air fields was conducted in the final phase for representatives of the military-political leadership of the FRG and NATO. During the period of 1 hour and 15 minutes 14 combat and four military transport aircraft made landings on the section of the Autobahn. After unloading, refueling and replenishing their ammunition supply, 13 (10 and 3 respectively) of them took off again. There was also a

demonstration of the Tornado, a West German tactical fighter outfitted with engines with thrust reversal. It made a landing, braked until it came to a complete halt and then took off again in the same direction.

The materiel and personnel of the servicing subunits were hauled to the dispersal air fields on transport aircraft and motor vehicles. Loading and unloading equipment, filling and charging machines and devices were extensively used to reduce the time required for repairs, postflight maintenance and preparation of the aircraft for the next flight. It took no more than 15 minutes to install an engine on the Alpha Jet aircraft as a result, and the total amount of time the four aircraft of this type spent on the ground being prepared for the next flight (including refueling, replenishing of the ammunition supply and a 1.5-minute warm up of the engine prior to takeoff) did not exceed 17 minutes. A C-160 aircraft was unloaded in less than 15 minutes.

The Western press pointed out that the training missions were performed during the exercise under the threat of "enemy" attack, and the actions of enemy aircraft were simulated by reconnaissance aircraft and fighter-bombers from NATO's Joint Air Forces in the Central European Theater of Military Operations. Subunits of 20mm antiaircraft guns were airlifted by helicopter to provide air defense for the dispersal air fields, and their ground defense was provided by West German airborne subunits. Interceptors were used for covering flights from the air. The organization of repair and restoration work on the runway, camouflaging with smoke and nets, the deactivation of unexploded ammunition and the emergency evacuation of aircraft, using special equipment, were also practiced at the dispersal air fields.

According to information published in the foreign press, NATO's military leadership attached great importance to the DOBAS-84 exercise and gave a high rating to the results. It believes that the exercise demonstrated a high level of training for the various categories of personnel and increased capabilities for the new models of weapons and combat equipment. Certain shortcomings were also revealed. Among other things, the exercise confirmed the conclusion that reserve air fields set up on sections of the Autobahn have limited suitability for the prolonged basing of aircraft, primarily as a result of inadequate parking room and the absence of taxiways. Statements by Western military experts indicate that the experience from this exercise will be used to test plans and concepts for dispersing the tactical aviation, as well as for specifying the requirements for the landing and takeoff and the technical specifications of future models of aviation equipment.

COPYRIGHT: "Zarubezhnoye vovennoye obozreniye", 1985.

11499

CSO: 1801/166

AFGHANISTAN

TASS CITES BAKHTAR ON U.S. 'SLANDEROUS CAMPAIGN' AGAINST DRA

LD191408 Moscow TASS in English 1355 GMT 19 Mar 85

[Text] Kabul, 19 Mar (TASS)--The consolidation of the people's power in the Democratic Republic of Afghanistan (DRA), the Afghan people's achievements in various spheres of social, economic and cultural life, and their successes in the fight against the counterrevolutionaries have invoked the wrath of the enemies of the April revolution, says a BAKHTAR news agency's statement circulated here.

The United States has resorted to another slanderous campaign for the purpose of distorting the real state of affairs in Afghanistan and justifying its interference in the republic's internal affairs. The United States has managed to put a resolution on the so-called "human rights situation in Afghanistan" through the UN Commission on Human Rights. The "report" of the man named Armakorea, the so-called special spokesman of the human rights commission on Afghanistan, was used as a base material for the resolution [sentence as received]. In the report, the emphasis is laid on "data" received from Afghan counterrevolutionaries and on inventions by the Pakistani authorities which have turned their country into a base for the imperialist aggression against the DRA.

The presentation of the Armakora report to the 40th session of the UN General Assembly and to the 42d session of the UN Human Rights Commission, combined with the above-mentioned resolution, is another attempt by the United States to give an international dimension to the alleged "breach of human rights in Afghanistan" and thereby to divert attention from U.S. aggressive actions against Lebanon, Grenada, El Salvador, and Angola where the United States most flagrantly violates all basic human rights. The aim of such reports and resolutions is to try to cover up the real face of those who wage the undeclared war against the Afghan people, BAKHTAR points out.

CSO: 1812/200

AFGHANISTAN

TASS: KABUL URGES END TO U.S.'INTERFERENCE'

LD191556 Moscow TASS in English 1534 GMT 19 Mar 85

[Text] Moscow, 19 Mar (TASS)--TASS political news analyst Askold Biryukov writes:

A recent press conference in Kabul for local and foreign journalists has confirmed with utmost certainty once again the fact of increasing armed interference by imperialism and international reaction in the affairs of sovereign Afghanistan. As was pointed out at the press conference, the Washington administration has assumed direct guidance over the undeclared war against revolutionary Afghanistan. It provides hundreds of millions of dollars every year to equip and train armed counterrevolutionary formations and send them into the territory of the Democratic Republic of Afghanistan. According to the Afghan news agency, BAKHTAR, the number of American "advisers" and specialists in sabotage, who are training bandits in more than 120 camps in Pakistani territory, has reached 318.

Killers and saboteurs are now being trained also in the territory of the United States itself and at the Pentagon's bases in other countries.

The closest "strategic allies" of the United States, notably Tel Aviv and Islamabad, are also increasing their contribution to the undeclared war. BAKHTAR reported that Pakistan, which has long been turned by the United States into the main staging area for aggression against the Democratic Republic of Afghanistan, has given consent to the setting up of a special school in its territory under the aegis of the CIA to train military personnel for Afghan counterrevolution. The Pakistani military and special services are also taking an active part in training of terrorists and their infiltration into Afghan territory. Islamabad has readily made its territory available for psychological warfare against Afghanistan.

Attention at the Kabul press conference was also called to another important fact, namely to large-scale attempts by Washington and American and other propaganda agencies obedient to it to disinform international public opinion, distort the democratic change which is under way in the Democratic Republic of Afghanistan in the interests of the Afghan people, and cast aspersions on friendly Soviet-Afghan relations and the Soviet Union's internationalist assistance to people's Afghanistan. These attempts, as was pointed out in Kabul, have included the U.S. President's arrogating of the right to proclaim "Afghanistan days" aiming to escalate the massive smear campaign against the DRA.

The aggressive actions of external forces against that country, which have continued nonstop for several years now, have meant spilt blood and suffering for common people. These actions have been steadily exacerbating the situation in that part of the world. It is not accidental that these actions have been increasingly condemned by the world's peace-loving public. For the sake of strengthening peace and stability in the region and Asia as a whole it is necessary to cut short the military intervention and any other outside interference in the affairs of people's Afghanistan. The Afghan people's right to build their life as they see fit is unquestionable.

CSO: 1812/200

AFGHANISTAN

TASS CITES KRASNAYA ZVEZDA ON U.S. AID TO AFGHAN REBELS

LD210830 Moscow TASS in English 0814 GMT 21 Mar 85

["The Biggest Clandestine Operation"--TASS headline]

[Text] Moscow, 21 Mar (TASS)--The Reagan administration is making fresh attempts at justifying in the eyes of the world public the undeclared war which it is waging against democratic Afghanistan, Viktor Vinogradov, a political news analyst, points out in the newspaper KRASNAYA ZVEZDA. To this end the U.S. Information Agency (USIA) staged recently in its international "Worldnet" television network system a clearly provocative programme on the "situation in Afghanistan." The authors of that television performance had recourse to shameless lies in an attempt to discredit the policy of the current Afghan Government and at the same time picturing the counter-revolutionary rabble engaged in a base war against its own people as "freedom fighters." Moreover, in Washington all sorts of anti-Afghan assemblages are staged regularly and the so-called "Afghanistan Day" is held every March.

One must have a great power of imagination or simply be able to lie shamelessly to picture these inveterate bandits on the payroll of the U.S. CIA as "fighters for the liberation of their homeland."

It is apt to recall that the Afghan counterrevolutionaries, who are, in actual fact, mercenaries of imperialism, have according to official data issued in Kabul, destroyed 1,814 school buildings, 31 hospitals, 906 peasant cooperatives, 14,000 kilometres of telephone lines and many bridges. Direct damage from their criminal activities has topped 35,000 million Afghanis. In attacking peaceful villages the bandits do not spare the lives either of children, or women and old people.

Reports are reaching from Pakistan that the headquarters of various Afghan counterrevolutionaries in Pakistan's territory are drawing up plans for new acts of subversion in Herat, Kandahar, Badakhshan and other provinces of the Democratic Republic of Afghanistan. The chiefs of counterrevolutionary gangs openly declared at a press conference in Islamabad their intention to step up acts of terrorism in Afghanistan's territory. In so doing they do not conceal that the fresh bloody crimes are planned with the participation of American "advisors."

Washington is, certainly, doing its utmost in an attempt to camouflage its criminal actions. United States Deputy Assistant Secretary of State Raphael, who appeared on the television programme sponsored by USIA, hypocritically said that Washington intended to increase in every way possible "humanitarian aid" to the so-called Afghan refugees. He also admitted that the United States would do everything necessary to support the forces opposing the people's power in Afghanistan. American Senator Jim Sasser, notorious for his reactionary views, has made it clear, that the supplies of modern weapons, including air-to-ground missiles are to be increased soon.

But even without that increase, the newspaper WASHINGTON POST wrote, quoting usually well-informed officials, the CIA's secret aid to rebels in Afghanistan has turned into the biggest clandestine operation of the United States since the Vietnam war. The U.S. Congress, the newspaper points out, has sharply increased appropriations by setting aside with these aims 250-280 million dollars in fiscal year 1985. On top of that, some other countries are planning to appropriate another 200 million dollars for the bandits.

CSO: 1812/200

AFGHANISTAN

MOSCOW SAYS WESTERN REPORTS ON DRA 'FAKED DELIBERATELY'

LD162000 Moscow World Service in English 1710 GMT 16 Mar 85

[Text] The Western Press carries many dramatic reports about events allegedly taking place in Afghanistan. In the following commentary, those reports are examined by Mikhail Glebov:

Most articles feature the allegations that fierce fighting is going on and the situation is very tense everywhere in Afghanistan. The policy of the Afghan Government is presented in the worst light and most unbelievable things are imputed to it. The only source quoted by the Western press are antigovernment forces; sometimes for the sake of variety references to some diplomats or travellers are made but those are never identified. But the gloomy picture presented by unidentified witnesses is disproved by real people with names. Those are correspondents who come to Afghanistan and search for true facts to compare the actual situation in the country with what the Western media reports.

One of those journalists is Philip Jacobson of Britain. He came to check the insurgents' report that the Afghan forces had completely destroyed the village of Golbahar. He came to the site and saw the village absolutely unharmed. On another occasion Jacobson actually had a chance to see how false information was being produced. Here is what happened. A group of Western diplomats were playing golf in Paghman, a beautiful town near Kabul. Suddenly several helicopters flew over them toward the Paghman hills. The diplomats were later told that a minor operation had been conducted there against a unit of insurgents who had come from the hills. The diplomats passed the information on to the newsmen. They were amazed to see the report in the press 2 days later with many impressive details added and with a claim that a 20,000 strong force of insurgents had been concentrated near Paghman preparing an attack on Kabul. So government helicopters were put on the round the clock patrol. Needless to say no one attacked the Afghan capital and the impressive details were all simply invented.

Another such case was described by an American journalist, John (Arvath), in an article he wrote for the West German daily DIE WELT, and this is what he wrote: A Western diplomat told a newsmen in Pakistan that his country's embassy in Kabul was reporting fierce battles for the Kabul airport. The WASHINGTON POST immediately carried a big front page article featuring the news. There was just one inaccuracy about the whole thing, no one ever fought any battles for the Kabul airport.

In a word, the sensational reports from the Western press concerning Afghanistan invariably carry nothing but false information. And it would be wrong to think that the false reports appear simply because gullible Western newsmen are fooled by cunning insurgents. No, the reports are faked deliberately in accordance with instructions from Washington and other Western capitals. This is proved by a telegram that the managers of the French press agency recently sent to the agency's office in Pakistan. The telegram was later obtained by the press and published in Paris papers. It contained directives to the agency staff that left no room for doubts or misinterpretation. We have learned from well informed sources, the telegram said, that the losses of the Afghan Government's troops are bigger than they are believed to be and that the insurgents are intensifying their attacks. We want reports on this as soon as possible.

Predictably this directive caused a flow of reports from Pakistan, reports adorned with most fantastic details. All this shows that a real psychological war is being waged against the Democratic Republic of Afghanistan and that war involves the use of the dirtiest methods. A few Western governments, with the American Administration in the lead, have been working for several years to kill the Afghan revolution just because they disapprove of it and their campaign of deliberate slander is intended to reach [as heard] the same purposes as the shipments of Western munitions to the counterrevolutionary terrorists.

The false reports are intended to keep tensions high in Afghanistan and to discredit the new Afghan Government by presenting it as a force that lost touch with the nation. But more and more people come to Afghanistan and what they see there is quite the opposite: the nation supports the government and its large-scale democratic transformations. Even CIA experts had to state in a recent memorandum that the revolution in Afghanistan had become the cause of the whole people.

CSO: 1812/200

END

**END OF**

**FICHE**

**DATE FILMED**

28 MAY 85

The ground forces include a total of 11 battle-ready divisions (seven armored, two infantry, one infantry "marine," one mountain infantry, one airborne landing and one armored division) and two training infantry divisions. In addition, the ground forces have separate units and subunits of central (the high command's reserve) and district subordination. The former include antiaircraft missile, armored (reconnaissance), engineer, signal, army air, transport and other regiments.

Forces located within the territory of a military district but not a part of the army corps or the RM are subordinate to the commander of the military district. Depending upon the situation, they can perform missions independently (in accordance with plans of the supreme command) or may be turned over to the army corps.

The foreign press reports that at the end of 1984, France's ground forces had more than 40 launchers for the Pluton guided missiles, around 1500 AMX-30 (Figure 1 [photographs not reproduced]), AMX-30B2 and AMX-41 tanks, approximately 500 105mm and 155mm field artillery guns, as many as 500 120mm mortars, more than 1500 Milan, Entac and SS-11 antitank missile systems, around 2,500 armored vehicles (AMX-10RC, -P and -PB, Panzer, VAB, Figure 2, AMX and AMX-13VIT), and around 700 planes and helicopters of the army aviation. The antiaircraft weapons are Roland antiaircraft missile systems (more than 120 launchers), the Improved Hawk (70), 20mm and 30mm guns (more than 600).

The army corps is the highest tactical formation of ground forces. The army corps are organized variously. The 1st Artillery Corps, for example, includes three armored divisions, an infantry and a training infantry division (the 6th Armored Division, which was formerly a part, was disbanded in mid-1984) the 2nd Artillery Corps includes three armored divisions, and the 3rd Armored Corps includes an armored division, an infantry and an infantry training division. In addition to the divisions, each army corps has a directorate (a staff and chief of the arms of troops and services) and the following regiments: a motorized infantry regiment, one or two armored regiments, one or two Pluton guided missile regiments, two artillery regiments, one or two Improved Hawk and Roland antiaircraft guided missile regiments, a signal regiment, an engineer and two army air regiments, as well as other units and subunits. The army corps is the main element, which organizes and provides material and technical support for the troops. All of its rear service units and subunits are combined into a rear service brigade.

The Rapid Deployment Force (headquartered at Saint-Germain-en-Laye) began to be formed in 1983. It will include five divisions: an armored, an airborne, an infantry "marine" and a mountain infantry division, as well as an air-mobile division, which is now being formed. When the RM is complete, it is to include around 47,000 men and have up to 300 helicopters for various purposes, around 280 mortars, more than 500 antitank guided missile launchers, as many as 180 combat reconnaissance vehicles, more than 500 armored personnel carriers and other weapons and combat equipment.

The reorganization of the ground forces is presently continuing in accordance with the 1984-88 Programme law for the organizational development of the armed forces.

The 1st Army will continue to include three army corps. The 1st Army Corps (Central) is to include four divisions (two armored, an infantry and a training infantry division), the 2nd (Eastern) is to have three armored divisions, and the 3rd (Northern) will have three divisions (an armored, an infantry and a training infantry division).

According to the plans, the ground forces will receive the following during the period 1984-1988: 500 AMX-30B2 tanks (see colored insert), around 150 155mm guns, 100 Milan antitank guided missile launchers, as many as 70 Roland antiaircraft guided missile launchers, approximately 1700 combat infantry vehicles and armored personnel carriers, and around 50 helicopters.

A new guided missile, the Ades, with a firing range of 350-400 kilometers and a payload of 80 kilotons, is being developed to replace the Pluton operational and tactical missile, which has a firing range of up to 120 kilometers and a payload of 10 and 25 kilotons. It is to be received by the forces at the beginning of the 90's. It is planned to combine the Ades guided missile regiments into an operational-tactical missile division, which, along with subunits of carrier aircraft of the air forces and naval aviation, will become a part of the tactical nuclear forces, subordinate directly to the chief of staff of the armed forces.

In the opinion of French military experts, the reorganization and technical re-equipment of the ground forces will significantly enhance their combat capability. When the reorganization of France's ground forces has been completed, they will number 15 divisions (six armored, two infantry, an infantry "marine," an air-mobile, an armored, an airborne, a mountain infantry and two training infantry divisions).

At the end of 1984, the air forces numbered 101,000 men, more than 500 combat aircraft, 100 helicopters, 11 tanker aircraft and 18 silo launchers for S-3 intermediate-range ballistic missiles (IRBM). According to the foreign press, the air forces have the following main missions: making strikes against enemy targets in the strategic and tactical depth, supporting the combat operations of the ground and naval forces, performing independent air operations, air-lifting troops and combat equipment, and covering large centers and military installations against enemy air strikes.

Territorially, the air units and subunits are distributed among four military air districts (VVO) with headquarters in the cities of Taveray, Metz, Bordeaux and Aix-en-Provence. In time of peace, the commander of the air forces is responsible for the combat readiness of the aviation (located within the district), and in time of war he carries out the planning and execution of air operations and organizes interaction with the ground and naval forces in the case of joint combat operations.

All of the nation's air force units and subunits are combined into the following commands in accordance with their purpose: strategic air, tactical air force, air defense, air transport, air training, communications, radio electronic warfare and materiel support.

In the opinion of the nation's military leaders, the Strategic Air Command (headquarters at Taveray) is the main strike force of air forces. It includes the First IRBM Division, two bomber squadrons and one aerial refueling squadron.

The First IRBM Division consists of two squadrons, each of which has ten silo missile launchers (the S-3 missiles have a range of more 3500 kilometers and carry a payload of 1 megaton). Both squadrons are based on the Plateau d'Albion (Vosges-de-Haute Provence Department).

The carrier aircraft of the strategic aviation are 35 Mirage-4A medium bombers, which have a range of 4800 kilometers (with one aerial refueling) and carry one 70 kiloton atom bomb. They are combined into two squadrons (eskadra) with two squadrons (eskadril'va) each. The tanker eskadra (three eskadril'va, with 11 KC-135A tankers) provides for the aerial refueling of strategic bombers and other aircraft.

The Tactical Air Command (headquarters at Metz) unites the entire tactical aviation. There are two tactical air commands subordinate to it. An air eskadra includes two or three eskadril'va (there a total of 20) with 15 combat aircraft each. The 2nd Tactical Air Command does not have air units in peacetime and can be used for mobilization deployment.

The command element of the tactical air forces has around 300 combat aircraft, including 240 fighter-bombers (Mirage-3E, Jaguar-A and Mirage 5-F) and 45 tactical reconnaissance aircraft (Mirage-3R, Mirage-3RD and Mirage-F.1CR).

The Mirage-3E and Jaguar-A (75 aircraft) are carrier aircraft and can operate to a depth of 500-700 kilometers with a 25 kiloton nuclear bomb on board (Figure 3).

The following airfields are the main bases: Auch (Nancy), Saint-Sauveur (Crussey), Saint-Dizier, Tulle-Rosieres, Colmar and Entzheim (Strasbourg).

The air defense command element (headquarters at Taverny) has 12 eskadriliya, combined into five fighter eskadra, and includes around 180 interceptors (Mirage-3E and -3C, Mirage-F.1 and Mirage-2000). The deployed batteries of Crotale antiaircraft guided missiles (48 launchers) and batteries of 20mm anti-aircraft guns (around 200) provide defense for air bases and IRBM sites. In addition, facilities of the command element of the tactical air forces and other branches of the armed forces can be drawn upon to perform air defense missions.

The Transport Air Command (headquarters at Vielle Couble) has at its disposal around 180 C-160 Transall, Noratlas, MS.760 and Brussard aircraft and up to 100 Puma and Alouette-2 and -3 helicopters.

The Air Training Command is in charge of the flight and technical training of the personnel, while the Communications and Radioelectronic Warfare Command is in charge of organizing communications and radioelectronic warfare, and for calibrating the radar equipment. The Materiel Support Command provides the air units and commands with aviation equipment, weapons, ammunition and other types of materiel, and also organizes the maintenance and repair.

The air forces are continuing to be outfitted with new aircraft equipment and weapons. In 1984 the forces began receiving the Mirage-2000 multipurpose aircraft (a total of 235, 85 of which are nuclear weapons carriers). The Mirage-2000 carrier aircraft will carry ASMP missiles with nuclear warheads (with a firing range of up to 300 kilometers and a payload of 150 kilotons). They will replace the obsolete Mirage-3E and Jaguar-A carrier aircraft.

/France's navy/ (68,000 men) occupies a leading place among the naval forces of the capitalist nations with respect to equipment, armaments and number of sea-going personnel. It is designated for making nuclear attacks against the enemy's most important administrative and industrial centers, for defending the nation's territory from the sea, conducting independent combat operations at sea, protecting naval lines of communication and supporting the combat operations of ground and air forces in Europe, both in oversea territories and in other areas which France considers to be its zones of influence.

According to foreign press reports, the Navy has 115 ships, more than 50 missile, patrol and landing boats, and up to 210 auxiliary vessels. The fleet's main ships are five Redoubtable class nuclear-powered missile submarines, two (Rubis) class nuclear-powered torpedo submarines and 17 Arista, Daphne and Narwhal diesel torpedo submarines, two Clemenceau multipurpose aircraft carriers (with up to 40 planes and helicopters on each), a Colbert cruiser, 13 (Georges Leygues) (Figure 4), (Suffren), (Tourville), (Dupetit Thouars) and (Duperre) class guided missile destroyers, five (Aconit) and (La Galissonniere) class destroyers, 26 Commandant Riviere and (D'Estienne d'Orves) class guided missile frigates, and the Jeanne d'Arc cruiser-helicopter carrier.

Organizationally, the Navy includes a strategic naval command and six operational commands of naval forces: in the Atlantic, the Mediterranean, the Indian Ocean zone, the Pacific Ocean zone and the South Atlantic as well as in Guyana and the Antilles. France's coastal area and adjacent waters are divided into three naval districts: First (headquarters at Cherbourg Naval Base), Second (Brest) and Third (Toulon).

The Navy's effective combat strength includes an eskadra of nuclear-powered missile submarines, two eskadra and three flotillas of surface ships, and battalions and detachments of ships.

The strategic naval command presently has Redoubtable, Terrible, (Foudroyant), Indomitable and Tonnant ballistic missile submarines, each of which carries 16 M20 ballistic missiles (with a firing range of up to 3000 kilometers and a one megaton monobloc warhead). A sixth L'inflexible is undergoing sea trials. It will be commissioned in 1985 as part of the fleet's battle ready forces. It will carry 16 M4 ballistic missiles (with a firing range of around 4000 kilometers, and MR payload and later, an MTRV with six warheads each with a power of 150 kilotons). According to the foreign press, all nuclear-powered missile submarines (with the exception of the Redoubtable ballistic missile submarine) will begin to be rearmed with M4 missiles. It is planned to begin construction of a seventh ballistic missile submarine in 1989/90, which is to become the prototype of a new generation.

The build-up of the submarine forces and the development of modern surface ships are continuing. Specifically, four nuclear-powered, multipurpose submarines, four guided missile destroyers and other ships and auxiliary vessels are under construction.

The Navy's aviation is broken down into carrier, coastal patrol and auxiliary air forces. It numbers around 300 planes and helicopters. The flotilla is the main tactical subunit of the carrier and coastal patrol aviation, and the squadron is the main subunit of the auxiliary aviation.

The carrier aviation has the following flotillas: three fighter-assault flotillas (36 Super Etendard nuclear weapons carriers), a fighter flotilla (15 F-8E Crusader aircraft), a reconnaissance flotilla (eight Etendard-4R aircraft) and two flotillas of antisubmarine aircraft (28 Breguet 1050 Alize aircraft). In addition, there are four flotillas of ASW helicopters (WG.13 Lynx and SA321G Super-Frelon) and one flotilla of transport and landing helicopters (Super-Frelon).

The Coastal Patrol Aviation includes five flotillas (34 Breguet 1150 Atlantique aircraft), and the auxiliary aviation includes ten air squadrons (around 130 planes and helicopters).

The naval infantry consists of a naval infantry battalion (five companies, three of which are reconnaissance and sabotage companies) and six companies for guarding naval bases, which have a combined numerical strength of around 1,000 men.

The /Paramilitary Police/ (85,000 men) is a component of the French Armed Forces and is directly subordinate to the minister of defense. Together with the civilian police, it performs surveillance of the civilian population and servicemen and is called upon for maintaining public order. It is also charged with criminal police functions (prosecution of law-breakers and investigation of criminals). It combats infractions of military discipline, maintains a register of reservists, carries out mobilization, and guards and defends important state facilities. It is armed with small arms, armored and motor vehicles, including light tanks and armored cars.

The Paramilitary Police is subdivided into department and mobile police, depending upon their tasks.

The foreign press states that a number of units and subunits of the Armed Forces (with a numerical strength of over 20,000 men) are stationed on French overseas territories and in certain African nations.

The Armed Forces are provided with personnel on the basis of a law on national compulsory military service, with recruitment by short-term (up to 2 years) and long-term (from 3 to 10 years) contracts, and by training regular officers.

The compulsory national military duty requirement can be met either on active military duty in the armed forces or by performing national defense service, under the program for development of oversea territories or in the provision of various types of aid to the developing nations.

Men between the ages of 18 and 50 years may be drafted. After serving their active military duty, they are listed in the minister of defense's reserve for a period of 4 years (first-turn reserve). They are in the armed forces' reserve to the age of 35 and are then transferred to the national service reserve, where they remain until they reach the age of 50.

More than 400,000 people are drafted annually, 220,000 of which are assigned to the ground forces. The Air Force and Navy are manned mainly out of the regular personnel and with recruitment by contract.

The officer corps is ordinarily replenished with graduates from officer schools, as well as with reserve officers and NCOs who have served at least 8 years in the armed forces and have successfully passed the tests in the corresponding program.

NCO training is conducted at military schools of the service branches and arms of troops for a period of 4 to 14 months. When the training has been completed and the graduates have served 1 year in the forces, they are promoted to the rank of sergeant. The NCOs receive the next military rank in accordance with their position and training level in their field of specialization. The maximum age is 47-55 years, depending upon the branch of armed forces.

The training of the lower ranks in the regular service includes three periods in all of the branches of armed forces: basic military training (2 months), training in the special field (6 months) and training within the subunits. Those drafted for active military duty are sent to training centers of the arms of service or directly to the units and subunits.

The reservists in all categories are attached to units, various military establishments or subunits of the civil defense corps and are periodically called up for training assemblies and military exercises. The total length of their refresher training the entire time they are in the reserve amounts to around 8 months. All categories of reservists undergo refresher training.

According to the foreign press, the reserve of the French Armed Forces numbered 457,000 men in 1982, including 281,000 in the ground forces, 117,000 in the Air Force and 64,000 in the Navy.

Under the 1984-1988 organizational development plan, France's armed forces, in addition to organizational restructuring, and continuing to be outfitted with modern weapons and combat equipment, mainly of national manufacture, are continuously building up their strength.

COPYRIGHT: "Zarubezhnoye voyennoye obozreniye", 1985.

11499

CSO: 1801/166

7 May 1985

## FOREIGN MILITARY AFFAIRS

## NATO'S MILITARY EXPENDITURES ITEMIZED

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 1, Jan 85 (Signed to press 11 Jan 85) pp 17-22

[Article by Col Ye. Nikolayenko and Capt A. Vasil'yev: "The Financing of NATO's Military Preparations"]

[Text] Comrade K.U. Chernenko, General Secretary of the CPSU Central Committee and Chairman of the Presidium of the USSR Supreme Soviet, has stated that the Soviet Union, as a great socialist power, is fully aware of its responsibility to peoples for the preservation and strengthening of peace. The USSR and the other socialist commonwealth nations put forth specific and realistic proposals aimed at controlling the arms race and resolving international disputes through talks. The appeal by the Warsaw Pact states to the NATO nations to begin consultations and talks on reducing military outlays was a logical extension of these peace initiatives.

The importance of this initiative is due to the fact that military outlays are inseparably linked with the realization of the plans of states for organizational development of the armed forces and are one of the most characteristic indices of the build-up of militaristic efforts in individual participants and in NATO as a whole. Since the first years after the North Atlantic bloc was founded, there has been a continuous growth in the absolute size of military expenditures by its members. While official data show that the volume of expenditures for military preparations by those nations amounted to 18.7 billion dollars in 1949, 30 years later it exceeded 218.5 billion. The sum total of military outlays for the period 1949-1979 reached the colossal figure of more than 2.6 trillion dollars. An additional almost 1.5 trillion dollars was spent during the period 1980 to 1984. The growth dynamics for military outlays by the bloc nations are shown in Table 1.

When we examine the financing process for NATO's militaristic preparations, we must bear in mind the fact that funds are allocated for these purposes at two levels: national and interstate. Like every international organization, the functioning of the North Atlantic alliance is based on the creation and use of centralized monetary funds, the most important of which are the budget of its central agencies and a special fund for a program for development of the infrastructure.

Table 1. Military Outlays of the NATO Nations (for Fiscal Years)

Страна (1)	1973-1977	1978-1982	1982	1983
США, млн. долларов <sup>(2)</sup>	447 150	741 740	196 345	225 345
Великобритания, млн. фунтов стерлингов <sup>(3)</sup>	25 779	54 148	14 500	17 500
ФРГ, млн. западногерманских марок <sup>(4)</sup>	184 247	243 379	54 234	57 131
Франция, млн. франков <sup>(5)</sup>	283 712	571 015	148 021	164 248
Италия, млрд. лир <sup>(6)</sup>	16 489	42 134	12 294	14 729
Канада, млн. канадских долларов <sup>(7)</sup>	16 107	28 930	7 655	8 388
Бельгия, млн. бельгийских франков <sup>(8)</sup>	350 095	579 768	132 127	137 163
Нидерланды, млн. гульденов <sup>(9)</sup>	35 377	52 945	11 021	12 302
Люксембург, млн. люксембургских франков <sup>(10)</sup>	4 159	7 538	1 893	2 100
Дания, млн. датских крон <sup>(11)</sup>	25 263	46 327	11 869	12 036
Норвегия, млн. норвежских крон <sup>(12)</sup>	23 481	42 882	10 956	12 078
Португалия, млн. эскудо <sup>(13)</sup>	102 669	220 871	63 817	79 021
Греция, млн. драхм <sup>(14)</sup>	222 127	583 762	176 270	212 768
Турция, млн. турецких лир <sup>(15)</sup>	148 704	1 106 020	447 790	556 738
(16) Всего*	724 363	1 235 049	297 445	326 871

\*Total amounts in this line are given in millions of American dollars (at the exchange rates for the corresponding years).

## Key:

- |   |   |
|---|---|
| 1. Country                                    | 9. Netherlands, millions of guilders        |
| 2. USA, millions of dollars                   | 10. Luxemburg, millions of luxemburg francs |
| 3. Great Britain, millions of pounds sterling | 11. Denmark, millions of Danish kroner      |
| 4. FRG, millions of West German marks         | 12. Norway, millions of Norwegian kroner    |
| 5. France, millions of francs                 | 13. Portugal, millions of escudos           |
| 6. Italy, billions of liras                   | 14. Greece, millions of drachmas            |
| 7. Canada, millions of Canadian dollars       | 15. Turkey, millions of Turkish liras       |
| 8. Belgium, millions of Belgian francs        | 16. Total                                   |

NATO's military budget, which is designated for covering the cost of maintaining the central establishments and headquarters, is made up of contributions from the member nations. The largest contribution is set for the USA. At the present time it amounts to more than 100 million dollars a year. The United States, the FRG and Great Britain, which have actually controlled the functioning of the bloc's central agencies since France withdrew from its military organization, contribute more than 70 percent of the entire budget.

NATO's military leadership devotes a great deal of attention to the construction of permanent facilities and installations in Western Europe, designated for providing material and technical support, the billeting and training of the personnel in peace time, and for the rapid deployment of the forces and the conduct of combat operations in a war. The organizational development is carried out in accordance with programs for the development of the bloc's infrastructure with funds provided by the participating nations. A total of 13.6 billion dollars

was allocated for these purposes from 1950 to 1985, 6.65 billion of which were for the period 1980-1985.

Despite the significant amounts of special-purpose funds created within the bloc, however, the bulk of the funds for the financing of military preparations is allocated for implementing national programs of organizational development for the armed forces. NATO's military-political leadership is exerting an ever increasing influence upon the extent and the focus of those programs by coordinating plans for the use and deployment of the armed forces, by outfitting them with the latest weapons systems and combat equipment, and by increasing the financing of militaristic preparations. The development and adoption of a long-term military program and the decision to increase military outlays for the participating nations by 3 percent annually (from 1979 to 1984) in fixed prices are the most graphic example of the attempts to raise the level of integration. A decision to extend these commitments to the year 1986 was approved at meetings of NATO's Military Planning Committee in May 1979.

A May 1978 meeting of the NATO Council approved a long-range military program covering the period up to 1994 and consisting of a series of detailed measures to enlarge the bloc's possibilities in a number of important areas of the work to further increase the militaristic preparations. It is planned to spend more than 80 billion dollars out of the national budgets for realizing around 120 measures under the program. The program's adoption and its actual fulfillment means that the United States, using the bloc's machinery, has bound its partners to long-term commitments and has thereby drawn them into a new round of the arms race. To a considerable degree it has also gotten the use of their national resources for its own purposes.

Implementing the decisions adopted, the bloc's member states are constantly enlarging the scale of the financing for military preparations. The total amount of expenditures for these purposes reached 1.4 trillion dollars during the period 1979-1983 alone, exceeding the level for the five previous years by almost 75 percent. The portion of the gross national product spent for military purposes also increased during that period in most of the nations in the bloc. It reached 6.9 percent in the USA, 5.6 percent in Great Britain, 4.2 percent in France and 3.4 percent in the FRG (Table 2). This demonstrates that the degree to which the economies of the NATO nations are being militarized is increasing.

Ruling circles in the United States of America are unvaryingly the initiator of the escalation of the arms race. President Reagan's Administration has especially distinguished itself in this respect. During the years in which it has been in power allocations for military purposes have increased to unprecedented amounts. For fiscal year 1984 (which ended on 30 September 1984), they were estimated at 265.3 billion dollars, and it is planned to increase the amount to 297 billion dollars in 1985. The Pentagon swallows up almost one-third of the federal budget. The nation's military expenditures will reach the astronomical figure of 1.7 trillion dollars in the period 1985-1989, and the experts estimate that the average annual growth rate will be 11.5 percent for the five-year period. This is due primarily to the state's aggressive policy and reflects an attempt to create the material foundation for unleashing wars of various sizes for combating the world socialist system and the world revolutionary movement. The acceleration of the arms race and the drastic increase in the military budget are serving to preserve and strengthen the leading status of the American monopolies in the capitalist world.

As a result of the increased efforts to prepare for war, the portion of the bloc's combined military outlays accounted for by the USA has constantly increased since 1981 and has now reached approximately 40 percent. The United States is relying on its dominant military-political position in NATO, however, to shift a significant portion of the burden of the military expenditures onto its allies.

The FRG makes an especially significant contribution to the financing of the bloc's activities. Since West Germany was accepted into the North Atlantic alliance in 1955, its portion of NATO's total outlays has increased from 2.5 to 11 percent, that is, almost 4.5-fold. A total of 48 billion marks was allocated for the Bundeswehr in fiscal year 1984. When outlays for military preparations through other departments are taken into account, the total military expenditures, the Western press reports, actually amount to 59.0 billion marks. West Germany is steadily following a course of building up the combat capability of its armed forces and creating a large military-industrial base which is not hampered by restrictions on the production of certain types of modern strategic weapons. A decision adopted at a meeting of the West European Alliance to lift the last restrictions imposed upon the FRG with respect to the production of bombers and long-range missiles, which was contrary to international agreements, has contributed greatly to this process. West Germany can now produce its own long-range offensive weapons systems capable of threatening the security not only of its neighbors, but also that of states far from its borders.

Despite Great Britain's enormous economic difficulties, it is constantly increasing its military outlays. It continues to occupy first place among NATO's West European nations with respect to the amount of money allocated directly or indirectly for militaristic purposes. The budget for the 1985/86 fiscal year indicates that the nation's military-political leadership is remaining loyal to its basic strategy and is financing the development of its armed forces in accordance with NATO's long-range program. Great Britain's total military expenditures in 1984 amounted to 18.5 billion pounds sterling, with the Ministry of Defense accounting for 16.8 billion of that.

France, which left the bloc's military organization in 1966, is nonetheless continuing to increase its military outlays at a rapid rate in accordance with the 1984-88 Program Law for Development of the Armed Forces. The military-political leadership has requested 830 billion francs for the Ministry of Defense during that period, intending to raise military expenditures to a level exceeding that of most NATO nations.

The trend involving an outstripping rate of growth of expenditures for the purchase of weapons and combat equipment is becoming a fairly stable feature of the military budgets of the bloc's nations, a fact which indicates that the NATO leaders are attempting to achieve technical military superiority over the Warsaw Pact states. The United States dominates in the development and production of weapons in the North Atlantic alliance. It has concentrated the production of the more important and complex weapons systems, particularly nuclear missiles, there. In fiscal year 1984 the Pentagon allocated 86 billion dollars for the purchase of weapons and around 27 billion dollars for SIOKE [scientific research and experimental design work], which accounted for 33.3 and 10.4 percent respectively of total allocations for the U.S. Defense Department.

Table 2. Portion of Military Outlays in the Gross Domestic Product of the NATO Nations (for fiscal years, percentage)

Страна (1)	1973-1977	1978-1982	1983
США (2)	5.7	5.6	6.9
Великобритания (3)	4.9	4.9	5.0
ФРГ (4)	3.5	3.3	3.4
Франция (5)	3.8	4.1	4.2
Италия (6)	2.5	2.5	2.8
Канада (7)	1.9	1.9	2.1
Бельгия (8)	3.2	3.4	3.4
Нидерланды (9)	3.1	3.2	3.3
Люксембург (10)	0.9	1.1	1.3
Дания (11)	2.3	2.4	2.4
Норвегия (12)	2.1	2.0	2.1
Португалия (13)	4.9	5.5	5.4
Греция (14)	6.1	6.5	7.1
Турция (15)	5.4	4.8	4.9

Key:

- |                  |                |
|------------------|----------------|
| 1. Country       | 9. Netherlands |
| 2. USA           | 10. Luxemburg  |
| 3. Great Britain | 11. Denmark    |
| 4. FRG           | 12. Norway     |
| 5. France        | 13. Portugal   |
| 6. Italy         | 14. Greece     |
| 7. Canada        | 15. Turkey     |
| 8. Belgium       |                |

These items also account for a large specific portion of the military budgets of the FRG, France and Great Britain. The foreign experts estimate that the USA and those three West European nations presently perform practically all of the bloc's scientific research and experimental design work, as well as the bulk of the purchases of modern weapons and military equipment.

The NATO military-political leaders continue to focus their attention on building up the strength of the strategic nuclear forces, particularly the matter of improving the precision and survivability of the strategic systems.

The existing nuclear arsenal in the United States is being improved, and new weapons of mass destruction are being developed at an accelerated rate. According to reports in the American press, allocations for the strategic forces in fiscal year 1984 reached 26.3 billion dollars, which exceeds the figure for the preceeding year by 31.5 percent. The Pentagon plans call for the allocation of considerable funds for the purchase of ten B-1B Bombers (6,124,500,000), for further modernization of the B-52 Aircraft (523,800,000) and for the production

of 21 M-X intercontinental ballistic missiles (2,117,400,000). Development of the ocean-based Trident nuclear missile system is proceeding at full speed. A total of 7,137,800,000 dollars has been requested under this program for 1984 for the construction of the 11th Ohio class nuclear missile submarine (Figure 1 [photographs not reproduced]). Funds were also allocated for the development of the Trident-2 missiles (1,473,200,000 dollars) and the new, land-based, mobile Midgetman intercontinental ballistic missile (467,300,000).

Substantial work is underway to modernize the strategic nuclear forces in Great Britain. It cost 382 million pounds sterling to maintain the Navy's four ballistic missile submarines armed with Polaris missiles in fiscal year 1983/84 alone. The Trident system has a special place in the militaristic plans of the Conservative Government. The cost of that program, including the construction of nuclear-powered submarines and their armament with American missiles, will be 8.7 billion pounds sterling at clearly understated official estimates. Work is presently underway to modernize shipbuilding yards of the Vickers firm at Barrow. Contracts have also been signed for the production of parts and assemblies whose manufacturer will require a long time, to make it possible to place the order for the first submarine in 1985. It is estimated that the cost of implementing the Trident program will amount to at least 3 percent of the British military budget during the next 10-15 years.

A total of 19.3 billion francs has been allocated in France to improve the nuclear capability in fiscal year 1983. It is planned to use these funds to complete the construction of a 6th L'Inflexible ballistic missile submarine, which is armed with the new M-4 Intermediate-Range ballistic missiles, to continue development of the S-X ground-to-ground mobile strategic missile, to considerably increase scientific research and experimental development work to produce the ocean-based SS ballistic missiles, to continue the research on neutron weapons and so forth.

The production and deployment in Western Europe of the intermediate-range, first-strike Pershing II and cruise missiles systems has an important place in Pentagon plans in connection with the program for modernizing the nuclear forces in the European theaters of military operations. In the budget for fiscal year 1984, 429.3 million dollars was allocated for the production of 70 Pershing II missiles, and 592 million was allocated for the production of 120 ground-based cruise missiles.

The ominous plans of the American Administration to build up arsenals of chemical weapons at an accelerated rate and to begin militarizing outer space are causing special concern in the world community. It is planned to spend 10 billion dollars between 1983 and 1987 to implement the program announced by the Reagan Cabinet for "chemical rearmament" of the USA. The White House plans to allocate 27 billion dollars within the next 5 years alone to create an antimissile defense system using space-based lasers, and to increase the figure to 95 billion by the year 2000.

The increased effectiveness of the new weapons systems in the contemporary situation, the command element of the bloc's armed forces believes, will make it possible to accomplish the assignment missions not with nuclear weapons alone, but also with the use of conventional weapons. Along with building up the strategic nuclear capability, the military-political leadership of the USA and NATO is therefore simultaneously giving a great deal of attention to the all-around

development of conventional weapons. In order to build up the combat capability of the ground forces (primarily fire power and maneuverability), the U.S. Defense Department plans to purchase 840 M1 Tanks (1,838,900,000 dollars), 600 M2 combat infantry vehicles and M3 combat reconnaissance vehicles (874,700,000), 130 M988 Sergeant York self-propelled antiaircraft units (646,600,000) and so forth out of the allocations for fiscal year 1984.

The command element of the U.S. Armed Forces is attempting to improve the Air Force by outfitting it with the latest combat aircraft and missiles of various kinds and with modern weapons control systems, as well as by making extensive use of radioelectronic warfare equipment. It is planned to spend the amounts designated for purchasing weapons and military equipment for the U.S. Air Force in 1984 (62.3 billion dollars) primarily to acquire 144 F-16 fighters (255,130,000), 36 F-15 fighters (1,526,200,000) and eight KC-10A transport and refueling aircraft (796 million), and to modernize 29 KC-135 tankers (543 million) and 24 C-5A transports (241.6 million).

A total of 86.1 billion dollars was spent for the construction or re-equipment of ships in the USA in fiscal year 1984, including 2,079,300,000 dollars for the construction of three Los Angeles class nuclear-powered torpedo boats, 3,268,300,000 for three Ticonderoga class guided missile cruisers, 1,365,700,000 for one LHD1 helicopter carriers, and 414.6 million for one LSD41 Woodby Island transport dock. The U.S. Defense Department's budget also covers purchases of a large number of aircraft, various types of missiles and so forth for the Navy.

It is planned to have a new generation of weapons and combat equipment in all the units and formations of NATO's European group of members in the 80's. In 1984, according to the foreign press, the ground forces of NATO's Western European members received more than 700 tanks, primarily the Leopard-II (Figure 2) and Challenger, dozens of artillery guns, hundreds of armored personnel carriers, infantry combat vehicles and combat reconnaissance vehicles; the air forces received up to 300 aircraft, 260 of which were combat aircraft (including Tornado, F-16 and Mirage-2000 Tactical Fighters); and the naval forces received eight destroyers and frigates, ten mine-sweepers, submarines and other combat ships and auxiliary vessels.

A characteristic feature of the development of the aggressive NATO bloc, imperialism's main military-political alliance, is a constant increase in the military budgets of the member nations for purposes of creating the foundation for an unrestrained arms race and for building up a military force by means of which they would be able to dictate their will to other nations and peoples. As a counterbalance to this, the socialist states are making every effort to put an end to this trend in the development of international relations, which is being imposed by the capitalist powers and is dangerous to the cause of peace. While pursuing a consistent and purposeful course of defending universal peace, our nation is at the same time doing everything necessary to reliably assure its own defense capability and the security of its allies.

COPYRIGHT: "Zarubezhnoye voyennoye obozreniye", 1985.

11499

CSL: 1801/166

7 May 1985

## FOREIGN MILITARY AFFAIRS

## JUNGLE COMBAT PRACTICES DISCUSSED

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 1, Jan 85 (Signed to press 11 Jan 85) pp 31-35

[Article by Col V. Dmitriyev: "Combat Operations in Jungles"; passages enclosed in slantlines printed in boldface]

[Text] Having set out on a course of drastically exacerbating the international situation and of preparing to unleash a war against the Soviet Union and other socialist nations, the military-political leaders of the USA do not conceal the fact that the nation's armed forces must always be prepared to engage in combat operations in any area of the planet which they declare to be a zone of their "vital interests." Ruling circles of the USA include Southeast Asia and adjacent waters of the Pacific Ocean, where they have concentrated a considerable military grouping in peace time, to be one such zone. Attempting to strengthen its influence in that region, the United States, along with outfitting the troops with the latest types of weapons and combat equipment, is continuing to improve the organizational structure of the formations, units and subunits, as well as the tactics and methods used by them for conducting combat operations in the specific conditions of a given theater of military operations, including jungles.

American military experts do not deny the fact that the armed forces already have a certain amount of experience in conducting combat operations in jungles. They acquired it during World War II and in contemporary local wars and conflicts in the nations of Southeast Asia, Africa and Latin America. This is reflected in the regulations for the ground forces, "Jungle Combat Operations," which provide a description of jungles and recommendations for organizing and conducting combat operations there.

[General Principles:] The American command element believes that combat operations in jungles are significantly influenced primarily by climate and vegetation. The combination of these two factors greatly limits the movement of troops, observation, the designation of sectors of fire, the organization of communications, target detection and intersection. The jungle climate is hot and humid; the average temperature during the summer months is 30-40 degrees C above zero, and the amount of precipitation, which ordinarily falls in the form of rains and downpours, reaches 1000-4000 mm per year. For several minutes the hot weather gives way to a heavy downpour, which can also stop just as suddenly, and the sun warms the dense vegetation and produces a high level of humidity. The heat and the abundant moisture contribute to the growth of thick tropical vegetation, including trees, giant ferns

and undergrowth interwoven with numerous creeping and winding plants. The thickness of the undergrowth differs in accordance with the amount of sunlight penetrating through the tree branches: the more light, the heavier the undergrowth.

The experts consider jungle conditions to be a major hindrance to the movement of troops. The network of roads in them is extremely sparse, and existing forest roads, paths and cleared strips are difficult to travel over, especially at a time of downpours. It is very difficult to travel over the broken terrain, even on foot, and is a slow process, frequently involving the hacking out of paths.

The American regulations state that the jungle climate greatly affects the health of servicemen who have not undergone acclimatization and do not have special training. This can increase the incidence of malaria, gastro-intestinal, fungous and other diseases among the soldiers. It is pointed out that unless proper steps are taken, the number of hospitalized personnel will exceed the number of wounded. Furthermore, jungles also have a great psychological effect upon the personnel, lowering their morale, especially in the case of failures. A great deal of attention is therefore given to the training of troops designated for conducting combat operations in jungles. For example, it is recommended that commanders and staffs carefully make up the units and subunits with specially trained servicemen and outfit them with the necessary weapons and combat equipment, as well as with personal gear, so that the soldier's field service marching order does not weight more than 20 kilograms.

It is the opinion of the command element of the ground forces that the infantry is most suited for jungle operations. Considering existing experience, it believes that combat operations will most frequently be conducted by small subunits (platoons and companies) armed with light automatic weapons, hand-held anti-tank rocket launchers, knives, hatchets (or machetes) and so forth. It is planned to reinforce these subunits with artillery and mortars, and when there are roads, clearings or paths, with armored personnel carriers and tanks. It is presently recommended that the subunits be able to conduct relatively independent combat operations with minimal requirements for combat and rear services support. According to information in the foreign press, for example, an infantry battalion may consist organizationally of four infantry companies and a support company armed with light fire arms, 81mm mortars and hand-held anti-tank rocket launchers (instead of 106.7mm mortars and the TOW and Dragon anti-tank missile systems respectively).

The U.S. Army's command element believes that a great deal of attention should be devoted to reconnaissance and security when combat operations are organized in jungles. We know of cases in which units and subunits neglected those types of combat support, ended up in ambushes and traps, and suffered heavy losses. The American regulations therefore underscore the fact that the specific jungle conditions and the limited number of sources from which to acquire intelligence on the enemy make it necessary for every commander "to see the battlefield" as in no other conditions.

Special studies made by American military experts on the visibility conditions for various military objects in jungles have shown that a camouflaged moving object can be detected at distances of 15-35 meters in a tropical forest, while a stationary object can be detected at up to 18 meters. In individual areas a camouflaged soldier can be seen (detected) at a distance of 1.5 meters. Because of this, it

is recommended that observation be organized mainly on open areas of the terrain, in clearings, forest roads, cuttings and so forth, and that elevations, ridges and tall trees be chosen as the observation sites. Nor is the possibility of conducting reconnaissance by listening ruled out, since engine noises, the clanging of metal and conversations can be heard well in jungles, where it is always relatively quiet. It is recommended that ground reconnaissance and signaling equipment be used and that patrolling be properly organized, especially on the distant approaches to the positions of one's troops.

It is pointed out that in the thick vegetation, troops can be taken by surprise and drawn into battle relatively easily. It is therefore recommended that commanders at all levels pay good attention to the security of their units and subunits in all types of combat activities. Special stress is laid on the fact that the areas where one's troops and bases are located should be prepared for all-round defense with appropriate sectors of fire. Patrols should be sent out 700-1000 meters on all paths leading to the disposition area. Security subunits are posted on all roads, paths, river channels and branches leading to the area or passing through the vicinity.

A jungle /offensive/ is planned and carried out on the basis of principles generally accepted in American regulations: a study of the enemy and a knowledge of the area of combat operations, the concentration of superior personnel and equipment, the execution of the strike, the neutralization of fire weapons, the destruction of enemy troops, the breakthrough and conduct of an offensive in the enemy's rear area, and continuous and flexible rear services support for one's troops. There are a number of specific features in the organization of combat operations and the employment of units and subunits of various branches of troops, weapons and combat equipment, however.

It is recommended that an offensive be conducted primarily on separate and isolated axes along roads, valleys, the channels of rivers and streams, and not in thick jungle, which considerably complicates the offensive, limits and contains the maneuvering of the troops.

The possibility of conducting an offensive along cross-country roads made by the troops on the general axis of the offensive exists, however in the absence of roads or paths. The foreign press points out, however, that considerable time and effort are needed to build them, and the handling capacity of those axes is extremely limited, which slows the pace of the offensive. The regulations therefore state that calculation of movement in jungles is frequently based on time and not distance. It is frequently a question of how long it will take to go from one line to another or from one point to another, and not how much distance will have to be covered.

The American military experts feel that a jungle offensive requires detailed and thorough organization of operations and is frequently conducted in platoons or companies (at most, battalions), and rarely by a brigade or an entire division. It is recommended that the commanders use their personnel and equipment in those areas and against those targets the capture or destruction of which would assure success in the battle. Centers of population, railways, airfields, elevations, ridges, rivers, roads and even paths become highly significant in those circumstances and may prove to be extremely important for the accomplishment of the mission.

It is also pointed out that there is no point in the subunits wandering aimlessly through thickets in search of an enemy evading combat, for example, or to attempt to capture and hold large areas, since this requires considerable amounts of personnel and equipment. It is practical to focus the units and subunits on an offensive against forces which have been detected and are fixed at their positions, as well as for attacking and destroying targets which are known to the troops and can be reached by their weapons. Upon approaching the defensive positions to actual firing distance, mainly the enemy's infantry weapons, the advancing troops deploy from march or approach march into battle formation and attack.

According to reports in the foreign press, an infantry battalion in a jungle offensive may arrange its battle formation in a single echelon with a reserve or in two echelons. Ordinarily each company in the first echelon is assigned an attack zone (or sector), the width of which is determined by the nature of the terrain, by the existence of roads or paths and by the arrangement of the battle formation, and may be as great as 500-1000 meters. The battalion's command post is ordinarily located at the center of the battle formation of its reserve. It is pointed out that in jungle conditions tanks will be used on a limited basis and primarily on axes accessible to tanks for supporting the offensive by infantry units and subunits, for combing the area, for accompanying and guarding various columns, for pursuing a withdrawing enemy and for conducting reconnaissance. In the aggressive war in Vietnam, for example, the Americans created something like battalion tactical groups consisting of a tank company, an infantry company in armored personnel carriers, a battery of self-propelled howitzers and other combat support subunits for conducting reconnaissance and for capturing and holding important installations. Such a group was supplied from the air by helicopters.

The U.S. military specialists believe that jungle combat operations will have the fast-moving, intense and fierce quality of close combat, in which only part of the personnel and equipment will be active. It is therefore recommended that when a battle breaks out, the unit and subunit commanders use available personnel and equipment to neutralize the enemy's fire weapons and pin the enemy down to make it possible to move other subunits into the battle area for purposes of outflanking or encircling the enemy or of cutting off possible routes of withdrawal.

The American manuals state that the mission of providing fire support for subunits engaged in battle is one of the most difficult missions performed in an offensive. They stress the fact that it may be limited in jungles, because of the difficulties involved in determining the precise location of targets and of maneuvering artillery and mortars within the limits of effective firing range. If good visibility is possible, however, the artillery, mortars, helicopters and tactical aircraft are capable of providing effective fire support for attacking units and subunits.

Based on the experience of the combat operations carried out by American troops in Vietnam, the military experts point out certain specific features of artillery employment in the course of providing fire support for troops. It was used in a decentralized manner, for example, attached to subunits operating on isolated axes. The maneuvering of artillery was extensively employed, with the subunits airlifted in batteries by helicopter into the enemy's rear area and opening fire on areas of concentration of enemy troops. The troops were also supported from artillery fire bases (positions) located on elevations to make it possible to fire in any direction. As the infantry advanced, the artillery was transferred by helicopter to new fire positions, from which it continued to provide fire support for the attackers.

As a rule, these bases were made up of several artillery batteries and were either temporary and designated for supporting specific operations, or stationary for firing at important areas, lines of communication or installations for long periods of time.

According to reports in the foreign press, troop control in an offensive is ordinarily decentralized down to the very lowest level. It is recommended that special attention be given to assuring reliable communication among all the weapons.

The foreign press states that a jungle defense is organized and conducted as a whole on the basis of the general principles of defensive combat but taking the area's specific climatic and natural conditions into account. The American manuals recommend that it be organized on a broad front, concentrating the effort on roads and other axes accessible for operations. The troops set up an all-around defense and security, ordinarily with the battle order formed in two echelons with a reserve. Second echelons and reserves are created for combatting infiltrating enemy subunits and groups, for reinforcing subunits in the first echelon and making counterattacks.

The foreign press stresses the fact that the principle of all-around defense is especially important in jungles. During the aggression in Vietnam, for example, American troops created a security zone or strip with a radius of several dozen kilometers around bases, troop locations and headquarters. A zone was broken up into sectors on the outer perimeter and inside it, in which battalion defense areas consisting of company and platoon strongpoints were set up. Patrolling, security and ambushes were set up before the defensive positions, and various engineer obstacles were created. The adjacent area was monitored from the air by personnel and facilities of the tactical and army aviation.

American military experts believe that this defense structure can be used by forces designated for conducting modern combat operations in jungles. It is especially pointed out that when the defense is set up, the units and subunits must make extensive use of various technical means of detecting the enemy (reconnaissance-signaling devices, radar, night vision devices and signal flares), land and other types of mines. It is also recommended that they occupy reserve areas, while remaining within range of their fire support weapons.

According to the American manuals, it is best to have the forward defensive edge on the most advantageous lines, while the platoon and company positions should have one or both flanks backed by such natural barriers as a river, lagoon, swamp, steep cliff or the like. Security positions are set up before the forward edge, which should be powerful enough to restrain an approaching enemy and prevent it from attacking before the positions occupied by the subunits have been warned.

When organizing a defense in jungles, it is recommended that a great deal of attention be given to the clearing of an area before the forward edge for surveillance and firing, and to setting up anti-personnel mine, wire, and other engineer obstacles made of both organic and improvised materials. The foreign press also states that the cutting down of vegetation to improve sectors of fire, especially for automatic weapons, should be kept to a minimum, since this is a clear indication of its position. It is therefore recommended that a fire "tunnel" from 1 to 4 meters in width be cut out in the vegetation "wall," which is camouflaged with overhanging foliage and bushes left in place.

It is best to arrange the fire system in a defense in accordance with the terrain before the forward edge and in defensive depth, echeloning the fire weapons. One of the main requirements of the defense is for the fire pressure on the advancing enemy to increase as the enemy approaches the defense line. The greatest fire intensity should be achieved when the attacking troops have moved directly up to the forward defensive edge, with a zone of solid multilayer artillery, mortar and small arms fire created there, as well as on the flanks of company and platoon strong-points and the boundaries between them.

Fire of all types in the defensive depth is coordinated with counterattacks by second echelons and reserves for purposes of taking advantage of the result of the fire strikes for completely routing an enemy which has broken in. These are undertaken before the enemy manages to dig in at captured positions. Attention is also directed to difficulties involved in the use of second echelons and reserves for executing counterattacks. These difficulties are due to the absence of roads, as a result of which it is recommended that the troops make cross-country routes, cut out clearings and in certain cases, build roads.

The question of enhancing the mobility of units and subunits of ground forces designated for use in jungles has recently been discussed in the foreign press. It is recommended that helicopters of the army aviation be extensively used to perform this mission. On the tactical level, the American command proposes conducting so-called air-mobile operations, which involve the transfer of units and subunits along with weapons, combat equipment and items of combat, material and technical support to the battlefield on helicopters, as well as supporting them from the air with helicopter fire support and tactical aircraft during a battle. Strict coordination, surprise and dynamic actions by the troops, their rapid crossing of significant distances, precision in calculating the time and in arriving at the designated areas, maneuverability and flexibility in the execution of missions, and the switching from one type of combat operations to another--the American military experts maintain that these are the main features of air-mobile operations. Various types of maneuvering were worked out on the practical level and recommended to the forces during the aggressive war in Vietnam, each of which was given a specific name: "Encirclement," "Ring," "Hammer and Anvil," "Double Bound," "Line," "Talons," and so forth.

These are the views in general form of the command element of the U.S. ground forces on the organization and conduct of jungle combat operations. The foreign press reports that the American military is currently improving the tactics of these operations, this time in Central America, which has been turned into a "hot spot" of the planet through the fault of U.S. imperialists. The USA's thuggish attack on Grenada, which the Pentagon assessed as a successful operation under difficult circumstances, was a glaring act of international brigandage. The USA's military advisers, however, are continuing to train Honduran and Salvadoran cutthroats to combat the patriotic forces, devoting special attention to operations for infiltrating mountain regions with dense vegetation. In addition, certain subunits of the American ground forces have participated with Honduras in exercises like the Big Pine exercise, in which questions of conducting combat operations under those circumstances were specifically worked out.

COPYRIGHT: "Zarubezhnoye voyennoye obozreniye", 1985.

11499

CSO: 1801/166

FOREIGN MILITARY AFFAIRS

TANK MODERNIZATION DEVELOPMENTS DESCRIBED

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 1, Jan 85 (Signed to press 11 Jan 85) pp 35-40

/Article by Col B. Safonov, candidate of technical sciences: "Modernization of Tanks in the NATO Nations"/

/Text/ In the plans for military preparations being made in nations of the aggressive NATO bloc, an important place is assigned to the further improvement of armored equipment, primarily the main combat tanks. It calls for both the building of new tanks and the modernizing of existing models.

Tank-building experience in the leading NATO nations has shown that the process of developing a new tank takes around 10 years from the moment the tactical and technical specifications are worked out until the forces begin receiving the series-produced tanks, and involves fairly large outlays.

A new tank ordinarily considerably surpasses previous models with respect to its combat features. After it is received by the forces, it is in series production for many years and is then used for 20 or 30 years in the forces. Means of armed conflict--antitank weapons, among others--undergo further development during that period. As a result, the tanks in use no longer fully meet the requirements made of them. New technical designs are increasing during that period, designs which can be incorporated in tank-building and improve the combat characteristics of the tanks. The foreign experts believe that all of this makes it possible and necessary to modernize the tank pool.

By modernization of the combat equipment the foreign experts mean bringing the vehicles, instruments, armaments and various types of equipment into conformity with modern requirements by making relatively insignificant changes in the structure and introducing new systems and materials or processing methods. With respect to tanks, it is a continuous process of structural and technological measures aimed at enhancing the combat and technical features of the tanks and extending their service life. It is pointed out that the development of new models is carried out simultaneously with this process. Furthermore, the technical achievements produced in the course of developing the new tank can be used for modernizing existing models, and vice versa.

The foreign experts distinguish two aspects of this process--modernization of the tank in the course of production and modernization of models previously produced. The purpose of the former is to introduce into the design improvements produced by the development of production capabilities, as well as the latest achievements of science and technology, whereas the purpose of the latter is to bring the combat features of tanks previously produced up to a level with the new model. Practically all of the second generation of tanks were repeatedly modernized during the production process--the West German Leopard-1 (the vehicle was given index-numbers 1A1, 1A2, 1A3 and 1A4), the American M60 (M60A1 and M60A3), the British Chieftain (around 13 modifications, including the latest, the Challenger, which is already being received by the forces, Figure 1 [photographs not reproduced]), the French AMX-30 (AMX-30B2 and AMX-32) and others. Programs have now been worked out for modernizing the new Leopard-II (FRG) and M1 Abrams (USA) tanks, which are being implemented in the course of their production. According to reports in the foreign press, almost all of the tanks now in the ground forces of the capitalist nations have been modernized. The experts stress, however, that modernization in the process of their production provides the greatest possibilities for enhancing the combat features and perfecting the designs of tanks.

In the planning and organization of projects for modernizing tanks abroad, the focus is on developing those features which have the greatest influence on their combat effectiveness. The main attention is therefore devoted to enhancing their fire power, their protection and mobility. Steps are also taken to eliminate existing structural deficiencies, to improve their operating features and so forth.

The matter of enhancing the fire power of tanks is linked to the resolution of three main problems: reducing the time spent by the crew in detecting and identifying targets on the battlefield, accelerating the process of preparing a round of ammunition, and destroying detected armored targets.

The foreign experts point out that considerably more time is now spent to detect targets from a tank than to destroy them. When the tanks are modernized, fairly serious attention is therefore given to increasing the search capabilities of the crews, a fact reflected primarily in the outfitting of the vehicles with improved day and night instruments. The fact is underscored that the main directions for enhancing these capabilities are the following: improving the quality of the instruments (increasing the field of view, light transmission and discrimination capability, stabilizing sighting lines or the sights themselves, and so forth), achieving a more efficient arrangement from the standpoint of convenience of use, employing instruments (which operate in the optical, heat and radar ranges), and making it possible for several crew members to search for targets simultaneously, particularly the gunner and commander (with the condition that each of them can open aimed fire independently). Television sights are being installed on the Leopard-II tanks, for example, which were initially produced with a television observation system (the transmitting camera was mounted on the gun mantlet, and video monitoring devices were installed at the work positions of the gunner and the tank commander). It is planned to install them on all the Leopard-II tanks, as well as the modernized models of the Leopard-I and the Marder infantry combat vehicle.

Comprehensive automated fire control systems (SUO) have been extensively installed on foreign tanks in the process of their modernization in recent years. This has

been done to enhance firing accuracy and reduce the amount of time required to prepare the first round. The systems include weapons stabilizers and observation instruments, a laser range finder, an electronic ballistic computer and other components. These systems make it possible to consider fairly objectively a large number of factors influencing firing accuracy, factors such as the incline of the gun's trunnion axis, the crosswind component, barrel bore wear, powder charge temperature, and others.

Integrated fire control systems have been installed on the new Leopard-II and M1 Abrams tanks, as well as the basic models in the second generation, in the process of their modernization. Work is presently under way to further improve the fire control systems. Specifically, a new fire control system will be installed on all modifications of the Leopard-I tank. It is planned to use an improved fire control system, which includes, in addition to the aforementioned basic components, a panoramic television device for the commander and an automatic tracking system, in the modernization of the American M1 Abrams tank in the production process. In addition, a new electronic ballistic computer and a laser rangefinder which operates on carbon dioxide will be used in this fire control system.

Increasing the shells' effect on the target is considered to be one of the most important directions for enhancing the fire power of tanks. A switch is being made extensively to large-caliber guns for this purpose in the modernization of tanks. Specifically, this was done in the modernization of the M48 tanks (USA, FRG, Israel and Spain) and the Centurion (Great Britain, Israel, Republic of South Africa). Beginning in September 1985, it is planned to switch from the 105mm rifled gun to a 120mm smoothbore gun in the process of producing the American M1 Abrams tank.

The Western experts also believe that there are still extensive possibilities in the area of improving the ammunition. The effectiveness of sub-caliber, armor-piercing shells has increased drastically in recent years. This was achieved by switching to elongated shell cores, fin-stabilized in flight. Increasing the ratio of the core length to its diameter increases the shell's transverse load and its penetrating capacity. The use of heavy and solid materials for producing the cores does the same.

Other types of shells, hollow-charge, HE armor-piercing, and those with prefabricated lethal components--are also being improved. The foreign experts stress, however, the introduction of new and improved ammunition into the tank's unit of fire ordinarily requires major modification of the set of fire control instruments.

The enhancement of tank protection (in the process of modernizing them) against conventional weapons is being carried out in the NATO nations in three main directions: reducing the probability of enemy shells striking the tank, increasing the strength of the armored structure and reducing the effect of the shells after they have penetrated the armor. It is believed that the first can be achieved by employing a system of camouflage means making it difficult to detect the tank (in the optical, heat and radar ranges) and to conduct aimed fire at it. The Western experts include the use of protective and distorting colors (Figure 2), insulating coverings and smoke agents, as well as reducing the noise level of the vehicles. The fact is stressed that the role of camouflage measures for enhancing the tank's overall protection is growing substantially in the modern situation.

Despite the great importance of the above-listed steps for enhancing the protection of tanks, it is the view of foreign experts that strengthening the armor protection will contribute most. They believe that it will be difficult to improve the armor protection, however, even in the process of substantial modernization. The improvement of the armor protection is therefore limited mainly to installing anti-hollow-shell plates and additional armoring of the most important sections of the hull and turret. On the new tanks, in the designs of which combination armor is used, it is possible to increase the protection by replacing the filling (the middle layer of laminated armor) with more energy-absorbing filler. This is being done on the Leopard-II and M1 Abrams tanks, among others, in the course of their series production.

When a tank's armor does not meet the demands made of it to a substantial degree, it is necessary to take complex and expensive steps to reinforce its protection. The armor on the West German Leopard-I tank, for example, was first strengthened in the course of modernizing it by hanging additional sheets of armor on it. A new turret then began to be installed on it. It is made of spaced armor, which has approximately twice the shell-resistance.

The use of so-called "active armor" (flat explosive charges arranged in metal boxes over the armor) is considered by the foreign experts to be an extremely promising way to enhance tank protection in the process of modernizing them. The operating principle of this charge is graphically shown in Figure 3. When a hollow-charge shell strikes the box, the detonator is activated, and a hollow-charge jet is produced. Injecting itself at great speed into the flat explosive charge, it causes the charge to detonate. The shock wave which is formed deforms and breaks up the hollow-charge jet, greatly reducing its penetrating capacity. The foreign press has reported that the effectiveness of such flat explosive charges was tested by Israel during its aggression in Lebanon in the summer of 1982. Studies of the use of explosive substances for protecting tanks against hollow-charge, antitank weapons are also being performed in the USA, the FRG, France and other countries.

A reduction in the effect of shells after they have penetrated the armor is being achieved, among other ways, by improving the fire-fighting equipment, by localizing damage, and so forth.

In the course of modernizing tanks, the foreign experts are giving a considerable amount of attention to increasing their mobility, mainly their average running speed. The engines are being replaced with more powerful and economical engines for this purpose, and more effective cooling systems, new transmissions (including automatic ones), modern turning mechanisms, improved components for the tracks and suspension, and equipment for underwater operation are being used. Teledyne Continental Motors in the USA, for example, developed on its own a modernized version of the M60 tank (the M60 Super). A new engine (1200hp), a hydromechanical transmission and a hydropneumatic suspension were installed in it, and it was provided with additional armor.

The reliability of the assemblies and systems is being increased and the operating characteristics are being improved in the modernization process. It is obvious that the longer a tank has been in use, the more modernization work will have to be performed to extend its service life. Figure 4 shows the structural changes made in the process of modernizing the American M48A1 tank, which has been brought

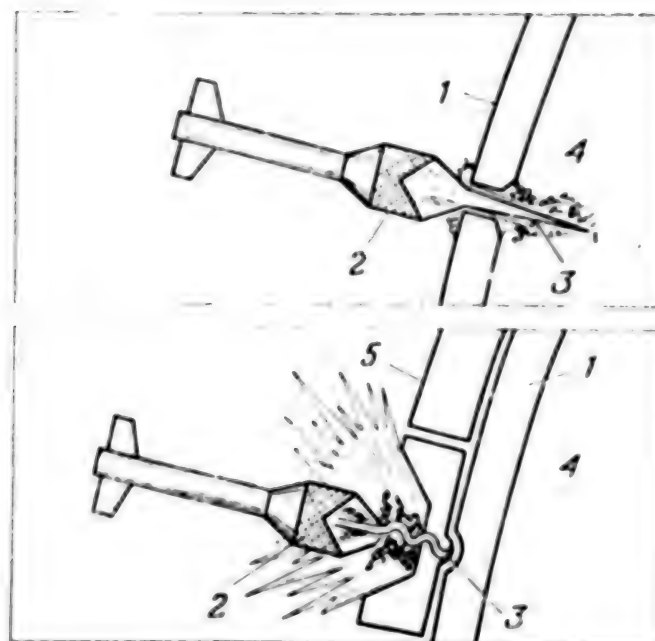


Figure 3. The operating principle of "active armor" (top--penetration of tank armor not equipped with flat explosive charges): 1. main armor, 2. armor-piercing, hollow-charge shell, 3. hollow-charge jet, 4. interior of tank, 5. metal container with explosive charge

up to a level with the M48A5. Approximately the same steps are being taken in the FRG in the modernization of the M48A2 tanks (to a level with the M48A2GA2).

When they analyze programs for the modernization of tanks, the Western experts stress the fact that a tank is a complex system, all of whose elements mutually influence one another. Altering any one of them will therefore inevitably require modifications and improvements in others. The switch to a gun of greater caliber, for example, will entail the need to modify the fire control system and rearrange the ammunition storage compartments, and may increase the weight of the turret and disturb its balance, alter the center of gravity of the vehicle as a whole, and so forth. This will in turn require structural changes in the components giving the tank its mobility. Boosting the engine makes it necessary to strengthen the transmission and the track and suspension assemblies. In general, all of this increases the amount of work and the cost of modernization.

The latter frequently reaches an amount equal to approximately half the cost of the tank. In the USA, specifically, the main efforts are now being focused on improving the M1 Abrams tank in the process of its production. The modernization program is in two phases. During the first (which begins in 1985) a 120mm smooth-bore gun will be installed (with corresponding alterations of the fighting compartment--the aiming stabilizer and drives, the sighting devices, the power unit, the ammunition storage compartment and so forth), it will be provided with greater protection against conventional and nuclear weapons, and improvements will be made in the suspension and drive. The vehicle will be given the index-number M1E1 (Figure 5). During the second phase in the first part of the 90's, it is

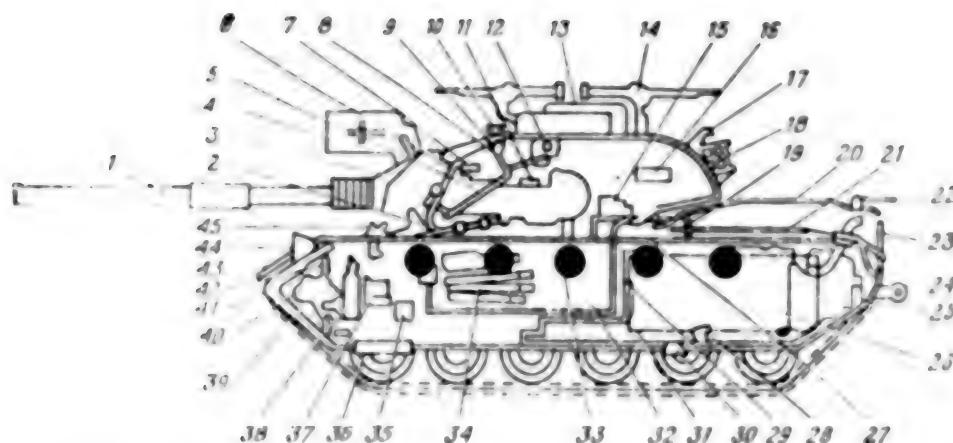


Figure 4. Assemblies, units and other components of the M48A1 tank which have been modernized to bring it up to a level with the M48A5: 1. M68 gun, 2. gun aiming drives, 3. gun mantlet, 4. 2.3 kilowatt searchlight, 5. gun mount, 6. internal nylon ballistic protection, 7. M114/M105 telescopic instrument, 8. M13B1 quadrant, 9. M10A6 ballistic drive; 10. M32 or M116 periscopic instrument, 11. M12B1C ballistic computer, 12. M17B1C rangefinder, 13. low-profile commander's cupola, 14. machine-gun on loader's hatch, 15. traverse gear-box for manual turning of turret, 16. ammunition stowage compartment in turret, 17. instruments and accessories for searchlight, 18. supply container on turret; 19. air cleaner for power unit, 20. heat-dissipating screen over motor and transmission compartment, 21. protective covering over motor and transmission department, 22. steady rest for gun while traveling, 23. engine exhaust manifold, 24. towing hooks, 25. brackets for securing motor and transmission block, 26. motor and transmission block and final drive gear, 27. turret support, 28. torsion bars, 29. stiffening girders, 30. drain valves, 31. fuel tanks and lines, 32. fighting compartment, 33. top rollers, 34. ammunition stowage compartment in fighting compartment, 35. spring rest and front support arm, 36. emergency hatch for driver-mechanic, 37. ammunition storage compartment in hull, 38. fire extinguishing system, 39. motion control drives, 40. heater for crew, 41. welding of hull parts, 42. speedometer/tachometer, 43. boxes and trays of spare parts, instruments and accessories, flaps, 44. combination headlights, 45. driver's observation instrument

planned to improve the 120mm gun, to reduce the size of the crew by automating the loading process, and alter the vehicle's arrangement. If this part of the modernization program is successfully accomplished, the American experts believe that the tank, which has been designated the M1E2, may develop into a new one--the MBT-95.

It is apparent from what we have said that intensive tank modernization is underway in the NATO nations. The main purpose of it all is to significantly enhance the combat capabilities of the tanks at various stages of their service life.

COPYRIGHT: "Zarubezhnoye voyennoye obozreniye", 1985.

11499

CSO: 1801/166

## FOREIGN MILITARY AFFAIRS

### DEVELOPMENTS IN ANTI-AIRCRAFT ARTILLERY DESCRIBED

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 1, Jan 85 (Signed to press 11 Jan 85) pp 41-48

[Article by Lt Col A. Tolin: "Antiaircraft Artillery Guns" passages enclosed in slantlines printed in boldface]

[Text] The armies of the capitalist nations have recently been devoting increasing attention to the improvement of air defense for the ground forces. A number of models of weapons and combat equipment have been developed on the basis of experience in local wars and exercises. The Western press states that they should provide for effectively battling aircraft over the entire range of altitudes--from extremely low to high. The foreign military experts regard antiaircraft guns as the weapons necessary for destroying low-flying targets.

Despite the fact that the foreign armies have short-range antiaircraft missile systems (ZRK), there continues to be a need for antiaircraft artillery. The reason for this is that antiaircraft guns have a number of advantages, which include the following: rapid reaction time, capacity for rapidly transferring fire from one target to another, the possibility of firing both at air targets and at lightly armored ground targets, the insignificant size of the air space not covered near the fire position, simplicity of operation and ammunition storage, as well as of organizing a supply of them for the antiaircraft units and subunits.

The armaments of the capitalist nations' armies include both self-propelled and towed antiaircraft guns. The most important role is assigned to self-propelled antiaircraft guns (ZSU), which are regarded as the main division air defense weapons. The high level of mobility, the possibility of firing during brief halts, the armored hull and turret permit self-propelled antiaircraft guns to engage in combat operations right in the combat formations. Because of this, the Western experts believe that they satisfy most fully the requirement for covering mechanized and armored units and subunits (especially in an offensive and on a march) against low-altitude air strikes. The towed guns are designated mainly for defending important stationary military installations and air fields against low-flying targets. The main tactical-technical characteristics of certain models of self-propelled and towed antiaircraft guns are given in the table.

# Main Tactical-Technical Characteristics of Self-Propelled and Towed Antiaircraft Guns

Наименование (1) Страна, разработчик, год принятия на вооружение	(2) Бое- вая масса, кг	(3) Средняя масса снаряда, кг (4)	Максималь- ная эффек- тивная даль- ность стрельбы, км (5)	(6) Средняя скорость стрельбы, выстр./мин	(7) Максималь- ная дальность проекта, км
1	2	3	4	5	6
<b>Самостоятельные</b>					
40 мм спаренная ЗСУ M247 «Сержант Пушка» США 1984 (10)	52	11.84 11840	4	300	700
35 мм спаренная ЗСУ «Гепард» ФРГ 1976 (11)	35.5	6.85 1175	4	550	400
30 мм спаренная ЗСУ на базе танка AMX-13 Франция 1966 (12)	17.5	6.46 1090	3.5	660	600
20 мм шестиствольная ЗСУ M167 «Вулкан» США 1968 (13)	12.5	6.12 1000	1.5	500	1800
<b>Буксирные</b>					
40 мм одноствольная у- становка L70 Швеция 1951 (14)	4.8	11.84 1000	4	300	122
35 мм спаренная устан- овка GDF-001 Швейца- рия 1963 (15)	6.4	6.85 1175	4	550	112
30 мм спаренная уста- новка «Артемида» экс- perimental Греция (16)	6.2	6.46 1090	3.5	600	500
20 мм шестиствольная установка M167 «Вулкан» США 1968 (13)	1.6	6.12 1000	1.5	500	500
20 мм спаренная уста- новка Mk20 Rh202 ФРГ 1972 (18)	1.64	6.12 1000	2	800	550
20 мм автоматическая пушка «Тараск» Фран- ция 1976 (19)	0.66	6.12 1000	1.5	740	140
20 мм автоматическая пушка GAI-B01 Швейца- рия 1954 (20)	0.4	6.12 1000	1.5	1000	50

\*For one barrel.

## Key:

- Developing nation, Year received in forces
- Combat weight, tons
- Shell weight, kilograms
- Muzzle velocity, m/s
- Maximum effective, inclined firing range, kilometers
- Rate of fire, rounds/minutes
- Unit of fire transported, rounds
- Self-propelled
- Towed
- 40mm paired M247 Sergeant, Tank self-propelled antiaircraft gun, USA, 1984
- 35mm paired Gepard self-propelled antiaircraft gun, FRG, 1976
- 30mm paired, self-propelled artillery guns on AMX-13 tank, France, 1966
- 20mm 6-barrel M163 Vulcan self-propelled artillery gun, USA, 1968
- 40mm single-barrel L70 gun, Sweden, 1951
- 35mm paired GDF-001 gun, Switzerland, 1963
- 30mm paired Artemis-30 gun (experimental), Greece
- 20mm 6-barrel M167 Vulcan gun, USA, 1968
- 20mm paired Mk20 Rh202 gun, FRG, 1972
- 20mm automatic Tarask cannon, France, 1976
- 20mm GAI-B01 automatic cannon, Switzerland, 1954

The foreign military experts say that the West German (35mm) and American (40mm) paired, self-propelled Gepard and M247 Sergeant York antiaircraft guns are the most improved self-propelled antiaircraft guns in the armaments of the foreign armies. Their fire control systems include radar sets which provide for independent detection and shelling of targets, regardless of the time of day or weather conditions.

The /Gepard self-propelled antiaircraft gun / (Figure 1 /photographs not reproduced/), which is based on the Leopard-I tank (maximum speed--65 kilometers per hour, range--600 kilometers), is equipped with the MPDR-12 detection radar and the Albis tracking radar, which operate on the 1500-5200 and 15,350-17,250 megacycle frequency bands respectively. Both sets have a range of 15 kilometers. There is also "friend-or-foe" identification equipment.

The identification radar has a 23 decibel coefficient for suppressing reflections from local objects. The station's pulse and medium power are 4 and 0.1 kilowatts respectively, and the pulse duration is 3.3 microseconds. The antenna, which is located in the rear part of the turret, rotates at a speed of 60 rotations per minute and forms a cosecant-quadratic radiation pattern in space, which is  $6.3^\circ$  wide on the horizontal plane.

The antenna of the tracking radar, which is beneath a radome, is mounted on the front part of the turret and can rotate for azimuth within a  $200^\circ$  sector. This is essential to provide for the turret's independent rotation on the horizontal plane (when laying the guns at a point of aim) and tracking targets by azimuth.

The two stations operate independently of each other, which makes it possible to scan the air space and search for new targets while tracking the target selected for shelling. For firing in a situation involving the extensive use of radio-electronic warfare equipment, the commander and gunner have optical sights with 1.5- and 6-fold magnification and a field of  $50^\circ$  and  $12.5^\circ$  respectively.

The fire control system has two semiconductor analog computers, one of them a backup, for performing the task of making contact and determining the horizontal and vertical lead angles, based on information on the target's movement parameters. Computation of the firing data takes into account the tilt angles of the gun body and muzzle velocity of the shells, which is measured by special sensors mounted on the barrel muzzles.

The artillery part of the Gepard self-propelled artillery gun includes two 35mm automatic guns produced by the Oerlikon company of Switzerland and a dual, belt feeder mechanism which makes it possible to fire different types of shells. The self-propelled mount is outfitted with navigation equipment, communication equipment, and atomic- and chemical-protection system, and mechanisms for automatically converting it from march to combat status.

The equipping of the FRG's ground forces with the Gepard self-propelled antiaircraft gun has now been completed (more than 400 have been delivered). Six-battery regiments (six guns in each battery) have now been formed in the Bundeswehr divisions, instead of the former antiaircraft artillery battalions. The ground forces of Belgium and the Netherlands also have the Gepard. The Dutch version of the gun differs from the West German self-propelled artillery gun in that it has a target detection radar of Dutch development, which operates on a frequency band of 8-10 gigahertz.

Like the West German gun the /American M247 Sergeant York self-propelled anti-aircraft gun is also an all-weather weapon (Figure 2). It is based on the M48A5 tank and consists of an artillery section, a fire control system and support systems.

The artillery part includes 40mm automatic guns (a modified version of the L70 gun produced by the Bofors firm of Sweden), which are supplied with ammunition independently of each other by means of an unlinked ammunition feed system. This makes it possible to fire, even if one of the guns is out of order. In this case, the round is of the same length as when the two guns are being fired. This is achieved with a special automatic mechanism. Both feed systems are provided with an ammunition selection mechanism making it possible to fire two types of shells. The advantage of the unlinked ammunition feed system, in the opinion of the American experts, is the short time required to replenish the unit of fire, which does not exceed 13 minutes.

Rounds of two types of shells are used for firing the M247 Sergeant York: fragmentation and armor piercing-and-fragmentation. The destructive elements of the first shell (with a radio fuse), in addition to the fragments formed when it shatters the hull, are 640 tungsten balls with a fairly great piercing capacity. The range of action of the radio fuse is regulated. It is activated at a distance of around 6 meters from the target when firing at an aircraft, around 2 meters when firing at small objects.

Reports in the foreign press indicate that the features of the American fragmentation shell with radio fuse are significantly better than those of the same kind of shell developed by the Bofors firm of Sweden. The shell's ballistic properties have been improved by increasing the weight of the shell to 980 grams (the Swedish shell weighs 880 grams). The shell's air resistance has been reduced by 6 percent on average by producing a plastic fairing for the nose cone. The metal alloy used has good energy characteristics. The foreign experts state that all of this has made it possible to increase the shell's velocity from 1025 to 1060 meters per second and to reduce its flight time, which is 1.1, 2.5 and 5.96 seconds respectively for ranges of 1,000, 2,000 and 4,000 meters.

The armor piercing-and-fragmentation shell, which is designed for destroying helicopters and lightly armored ground targets, is capable of penetrating a sheet of armor up to 25mm thick. The impact fuse is a delayed-action fuse, which explodes the shell after it has passed through the armored barrier. Its flight time is 1.1, 2.8, 4.4 and 6.6 seconds respectively for ranges of 1,000, 2,000, 3,000 and 4,000 meters.

The fire control system for the M247 Sergeant York includes a combination detection and tracking radar, an optical sight with a laser rangefinder, a telescopic sight, a digital computer (TsVM) and a stabilization system. All of the equipment is installed inside a rotating armored turret, which contains the work stations of the crew's commander and the gunner.

The combination relay (which has a frequency range of 10-20 gigahertz) is a modification of the AN/APG-66 carried on the American F-16 fighter. Two separate antenna subsystems, which operate from a common transmitter (air-cooled) is used in it for target detection and tracking. The antenna for detecting air targets

rotates azimuthally and scans with two radiation patterns turned 180° one from the other. Because of the digital method used for processing the radar signals, the foreign military experts state, the set can identify the type of target (plane, helicopter, missile or ground target). It is also reported that protection against radioelectronic warfare is achieved by resetting the radar frequencies and by adjusting the radiating power to obtain a good "signal/noise" ratio.

Optical and optical-electronic equipment in the fire control system can be used for firing in good weather. In this case the commander searches by means of an optical sight, which can be completely rotated azimuthally and has a field of 20°. When a target is locked-on, the laser range-finder with sight makes it possible to determine the distance to the target with adequate precision (measurement error does not exceed 5 meters for a range of 8 kilometers). The gunner tracks the target by angular coordinates with a telescopic sight. The coordinates thus measured go to the digital computer, where the point of impact of the shell with the target and the lead angles are determined.

It is the opinion of Western experts that the stabilization system makes the M247 Sergeant York the only self-propelled antiaircraft gun presently developed in the capitalist nations, which is capable of firing in motion. Reports in the foreign press indicate that in range tests, targets were destroyed even with the unit moving at speeds of over 40 kilometers per hour.

Production of the M247 Sergeant York was begun in the USA at the end of 1983. According to published information, it is planned to produce 50, 96 and 130 respectively in 1984, 1985 and 1986. The cost of the entire program, including the research, development and the procurement of 618 units, is expected to cost around 9.5 billion dollars.

In addition to the Gepard and Sergeant York all-weather self-propelled artillery guns, which are structurally complex and expensive to produce and operate, the foreign armies also have relatively simple and inexpensive all-weather self-propelled artillery guns. One of these is the American M163 Vulcan (Figure 3), which, along with the short-range Chaparral, is in use in antiaircraft battalions of the U.S. ground forces. It is based on the M113A1 tracked armored personnel carrier, which has a maximum speed of 65 kilometers per hour and a range of 480 kilometers.

The M168 six-barrel 20mm automatic gun with blocked barrels rotated by an electric drive and a common unlinked ammunition feed system for all the barrels is used on this unit. The rate of fire and duration of a round (10, 30, 60 and 100 shots) are regulated by special mechanisms. Rounds of fragmentation-incendiary and tracer-fitted armor-piercing shells are used.

The fire control system of the Vulcan includes a gyro-stabilized sight with a computer device and the AN/VPS-2 radio range-finder (with a range of up to 5 kilometers and a measurement accuracy of  $\pm 10$  meters). Target indication can also be received from an AN/MPQ-49 radar set for detecting low-flying targets, which is a part of the equipment of the mixed Chaparral-Vulcan antiaircraft battalions. A battalion has two Chaparral and two Vulcan batteries (with 24 units of each type).

Reports in the foreign press state that its inadequate firing range, the impossibility of using it in all kinds of weather and the absence of an armored turret and support systems were the reasons why the Vulcan will be replaced with the M247 Sergeant York in the U.S. ground forces. A certain number of Vulcans will remain in the armies of a number of other capitalist nations, however. France's ground forces are equipped with a 130mm paired self-propelled artillery piece/ (Figure 4) developed out of the AMX-13 light tank (with a maximum speed of up to 60 kilometers per hour and a range of 400 kilometers). It is equipped with two HSS831A automatic guns and fire control system which includes the DR-VC-1A radar, telescopic sights for the commander and gunner and an analog computer. The coherent pulsed Doppler radar, which operates on a frequency range of 1710-1750 megacycles, is designed for detecting targets and measuring the distance to them. The duration of the pulse emitted by the set when performing these tasks is 22 and 7 microseconds respectively.

When searching for a target in a preset sector or with circular scanning the radar set is rotated by a hydraulic drive at a speed of 60 turns per minute. The antenna's radiation pattern is cosecant-quadratic with a beam width of 45 and 10° respectively for angle of elevation and azimuth.

After a target has been detected and identified, the turret is turned azimuthally until the circular scan indicator's sighting line coincides with the blip from the target. The gunner locks on and tracks it with a telescopic sight, while the radar goes into the distance tracking mode. Information on the angular coordinates received from the sensors on the gunner's telescopic sight, the speed of the air target and the distance to it, which are measured by means of the radar, are fed into a computer, where the data essential for firing at a future position are derived.

An improved version of the non-all-weather 30mm paired self-propelled antiaircraft artillery piece with improved radar was developed in France in the mid-60's. This unit is set up on the AMX-30 tank, which made it possible to increase the unit of fire hauled and its range. More than 50 of these units were delivered to Saudi Arabia.

At the end of the 70's the Thompson-CSF firm demonstrated an experimental model of the 30mm Drakon paired self-propelled artillery piece.\* It was designed from the West German Marder combat infantry vehicle. An Oerlikon radar set, which operates on a frequency band of 1710-1750 megacycles, is used for detecting air targets and measuring the distance to them.

Self-propelled antiaircraft artillery pieces are presently being developed in Italy and Japan. For example, the OTO-Melara firm of Italy is developing a 125mm quadruple self-propelled antiaircraft artillery piece/ to fill an order for the ground forces. It is based on a modified version of the American M113 tracked armored personnel carrier. Maximum rate of fire for the Swiss KBA-B guns used in it is 570 rounds/minute per barrel. The unit of fire carried is 600 rounds of KE fragmentation shells. There are 30 rounds of sub-caliber armor-piercing shells with discarding sabot for destroying armored ground targets.

\*For more details on the Drakon self-propelled artillery piece read ZARUBEZHNOYE VOYENNOYE OBOZRENIYE, No 3, 1983, pp 41-42.--Editor

The electronic-optical fire control system in the battalion unit includes a television device for detecting and tracking air targets, an all-purpose (day and night) sight with laser range-finder, a computer and indicators of hull tilt angles. The absence of radar means that it can only be fired in good weather conditions. The foreign press points out, however, that in the future it will be possible to develop a fire control vehicle with radar for detecting air targets, designed to issue target indications to several of these self-propelled anti-aircraft artillery pieces.

Since 1978 Japan has been developing an all-weather 33mm paired self-propelled artillery piece with a fire control system, which will contain radar for detecting tracking targets, a digital computer and a stabilization system. It is planned to use the tracks and undercarriage of the 74 tank as the self-propelled base.

Towed models are also used in the foreign armies along with self-propelled anti-aircraft pieces. The Swedish L70 40mm single-barrel antiaircraft gun and the Swiss GDF-001 35mm paired antiaircraft piece are in greatest use. The fire units of both guns are used in tandem with the Super Fledermaus and Skyguard fire control systems, the gear of which, located in the cab of a double-axle trailer, makes it possible to detect and track air targets and to issue the data necessary for firing.

The /L70 towed antiaircraft piece/ (Figure 5), which was developed in 1951 by the Bofors firm of Sweden, is used by the armies of 11 NATO nations (it has been licensed to six of them) and a number of other capitalist states. More than 6,000 of these pieces and more than 10 million units of the ammunition have been produced. Rounds with HE fragmentation, armor-piercing and sub-caliber armor-piercing (with discarding sabot) shells are used in them.

The L70 antiaircraft gun and the ammunition underwent modernization during the 70's. An improved version, which was given the designation "75," was produced as a result. Rate of fire has been increased to 300 rounds/minute by perfecting the recoil absorber and the ammunition feed and loading mechanism. The capacity of the ammunition storage compartment has been increased from 48 to 96 rounds. The 75 gun is equipped with the BOF1 self-contained electronic-optical fire control system and a power feed device located on the carriage (these are used in common by a fire subunit consisting of several guns in the case of the L70). Judging from reports in the foreign press, these improvements have made it possible to use the gun independently during the day and at night (the BOF1 system includes a night sight), enhanced firing effectiveness and reduced the amount of time required to go from march to combat status.

In order to improve firing effectiveness, the Bofors firm has developed a fragmentation shell with prefabricated destructive elements, which includes a radio fuse. The destructive elements are round and made of a solid alloy. They are capable of penetrating an aluminum sheet up to 10mm thick. The Western experts believe that the use of this shell makes it possible to successfully destroy not only planes and helicopters, but also certain types of missiles.

The /Swiss 35mm CDF-001 paired antiaircraft piece/ (Figure 6), developed by Oerlikon, is also used in the armies of Austria, Argentina, Brazil, Greece, Egypt,

Spain, Columbia, the Republic of South Africa and Japan (it has been licensed to the latter). The unit consists of two automatic guns, a hydraulic spring recuperator recoil absorber, sights for firing at air and ground targets, guidance mechanisms with electric drives, four box magazines, a saddle and saddle support. The latter is a four-wheel platform with two folding trails and jacks. Sensors for measuring shell muzzle velocity are installed on the gun muzzles. Rounds of fragmentation-incendiary and armor-piercing-incendiary shells are used.

The /American M167 Vulcan towed 20mm 6-barrel unit/ is an organic weapon of the antiaircraft battalions of airborne and air-assault divisions of the U.S. ground forces. A battalion has four batteries with 12 guns each. The gun and the system of fire of the towed M167 are the same as those of the M163. Its weight has been reduced considerably, however, by installing it on a light, single-axle trailer and reducing the amount of ammunition hauled.

The /West German Mk20Rh202, 20mm, paired, towed antiaircraft piece/ (Figure 7) developed by Rheinmetall, is designed for covering air fields, missile launching positions, antiaircraft missile systems and other installations. It can be used for firing at lightly armored ground targets. The unit consists of two automatic guns, and ammunition feed mechanism, laying mechanisms with hydraulic and manual drives, a sighting system, a saddle and a saddle support (the latter has three rests) and a single-axle, wheeled running gear.

The P56 Galileo sighting system, developed in Italy, includes an optical sight with 5-fold magnification and a field of  $120^\circ$ , as well as an analog computer. Data on the range and flight speed of the target are fed by the gunner into the computer device before opening fire manually.

The hydraulic drive for the laying mechanisms makes it possible to rotate the barrels horizontally and vertically at respective speeds of  $100^\circ$  and  $55^\circ$  per sec. Located beneath the gunner's seat, it is operated by an 8hp gasoline engine.

The ammunition belts are kept in boxes (275 rounds in each) on the sides of the saddle. It uses fragmentation-incendiary and armor-piercing shells. It can fire single shots or rounds of 15-25 shots per barrel. The armor-piercing shell has a steel core, which makes it possible to penetrate armor 32, 34, and 8mm thick respectively at a range of 100 meters and at angles of impact of  $0.30$  and  $60^\circ$  (from the normal).

In 1983 the Hellenik Arms Industries developed the /Artemis-30 towed antiaircraft piece/ (Figure 8), which, the foreign experts believe, has fairly good operational indices and reliability, while being of relatively simple design. Prefabricated subsystems and devices previously developed by other West European firms were extensively used to build the unit and its fire control system. Two automatic guns mounted on a towed 30mm, paired antiaircraft piece, which was developed by the Mauser firm of West Germany, have a common ammunition feed mechanism and are on a moveable foundation which can be rotated in a complete circle on the double-axle carriage. When the guns are fired, the carriage is jacked up. Rounds used in the American CAU-8A aircraft cannon are used in it. They contain the following types of shells: HE fragmentation, armor-piercing and incendiary, and sub-caliber armor-piercing with discarding sabot. The Greek experts propose using a new triple-base metal compound to increase the firing range by 300-400 meters. This will require a stronger case. It is therefore planned to make the cases of steel and not aluminum.

The firing of the Artemis-30 antiaircraft pieces (each one has an optical sight) can also be performed by means of a fire control system which will include a television-optical sight (with a 3.6X2.7° field) with a silicon vidicon, an infrared tracking device, a laser range-finder and a computer. All of the system's equipment will be housed in a van mounted on a double-axle wheeled trailer.

According to the foreign press, barrelled antiaircraft artillery is presently continuing to be improved in the capitalist states. The development of new models is planned, along with modernization of antiaircraft pieces already in use, their systems and fire control equipment. The foreign military experts consider the development of shells with control gear making it possible to adjust their flight path, and the development of guns with electromagnetic acceleration of the shells to hypersonic flight speeds to be among the promising directions for enhancing the firing effectiveness of antiaircraft artillery. It is stated, for example, that the effective firing range of the M247 Sergeant York can be increased by 50 percent by equipping the 40mm shell with a radar sensor in the millimeter range and a control system.

The NATO nations are studying the possibility of developing a combination missile and artillery antiaircraft piece. For example, the American firm of General Electric has developed an experimental model of a towed unit, the GEMAG-25 (General Electric Mobile Air Defense Gun), as one version of the light antiaircraft weapon designed for use in the Rapid Deployment Force. It is equipped with radar, the Gau-12 25mm gun (with a rotating block consisting of five barrels) and four launchers with Stinger antiaircraft guided missiles. An improved version was produced in 1983, which, unlike its predecessor, has six Stinger launchers and an operator's cab, as well as a wheeled carriage of altered design. This piece is presently undergoing testing.

COPYRIGHT: "Zarubezhnoye voyennoye obozreniye", 1985.

11499

CSO: 1801/166

7 May 1985

## FOREIGN MILITARY AFFAIRS

## MANEUVERING IN AERIAL COMBAT EXAMINED

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 1, Jan 85 (Signed to press 11 Jan 85) pp 53-57

[Article by Col V. Petrov, candidate of military sciences: "Maneuvering in the Air Battle"]

[Text] According to the views of NATO's military leaders, one of the main missions facing the aviation of that aggressive imperialist bloc is the mission of gaining and retaining air superiority. This is considered to be an absolute requirement for the conduct of combat operations by all branches of armed forces. It can be accomplished by destroying the enemy's aircraft in the air, as an example. In addition, the effectiveness of operations by the aviation when it is performing other missions also depends in great part on the ability of the crews to conduct aerial combat.

The USA and other nations of the North Atlantic alliance are therefore very thoroughly studying the use of aircraft in local wars in Southeast Asia and the Near East, as well as in other military conflicts. By analyzing this experience and considering the advantages and the shortcomings of modern combat aircraft and their airborne equipment, Western military experts have worked out a so-called aerial combat formula.\* It reflects the degree to which various factors, mainly the capabilities of the aviation equipment, affects the shaping of tactics and the achievement of success in a battle. It also takes into account the maneuverability factor, which combines such indicators as thrust-weight ratio, specific wingload and the extent of the wing's lift-increasing effect. The foreign press states that it is the pilot's mission in an air battle to realize the advantages of his equipment. In addition, he must prevent the enemy from taking advantage of its weak aspects. A great deal of attention is therefore devoted to mastering the tactical elements, especially maneuvering, when pilots are trained to engage in air battles abroad.

The NATO experts have always considered the target's rear half-sphere to be the preferred area for possible attacks in close combat, within which guided missiles with infrared homing heads and cannons are employed most effectively. This area is depicted in the form of a cone with an angle of 40° from the aircraft's longitudinal axis at the apex and an altitude of around 2 kilometers (Figure 1).

\*For a more detailed discussion of this formula, see ZARUBEZHNOYE VOYENNOYE OBOZRENIYE, No 1, 1984, pp 47-54, and No 2, pp 53-58.--Editor

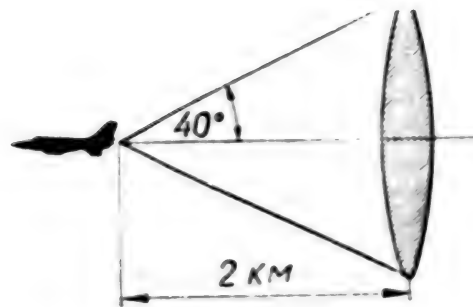


Figure 1. Area of possible attack by enemy aircraft with airborne guns and short-range guided missiles

Up to the present, aerial combat tactics in the air forces of the NATO nations have been based on two extremely important principles. In the first place, it is considered inadmissible to permit an enemy fighter to enter the area of possible attack of one's aircraft. In the second place, it is recommended that one enter that very area around the enemy by maneuvering. The foreign military press stresses the fact that many of the main types of maneuvering have actually remained the same as they were during World War II. Their parameters have changed substantially, however. New types of maneuvering have also come into being as modern fighters have become a part of the armament.

Western experts divide maneuvers in aerial combat into three groups: defensive, offensive and neutral. Breaking away from an air enemy and the "controlled roll" with a large turning radius at maximum acceleration are considered to be typical defensive maneuvers. Offensive maneuvers include the "rapid double bank" (high-speed Yo-Yo), the "roll" with subsequent lagging from the pursued aircraft (lag pursuit roll) and the "slow double bank" (low-speed Yo-Yo). Neutral maneuvers include such forms as the "scissors" (on horizontal and vertical planes) and a combination of "scissors" and "roll."

The main objective of maneuvering is to occupy an advantageous position with respect to the enemy. In close aerial combat the maneuvers are a system of horizontal and vertical, as well as coordinated and boosted turns. The foreign experts stress the fact that in working out standard maneuvers, one must take into account the aircraft's ability to execute them without any loss of power (or at least with minimal loss), as well as the following main factors: armament, electronics, maneuverability and invulnerability (individual defense).

According to reports in the Western press, the fighters are now armed with "air-to-air" missiles, which make it possible in principle to attack a target from any aspect. They include the Sparrow (USA) and Skyflash (Great Britain) as well as a number of other missiles equipped with semi-active radar homing heads (GSN). A precise and stable radar signal reflected off the target is required for launching and guiding them, however. The capabilities of guided missiles with passive infrared homing heads have been expanded. Among other things, the American AIM-9L Sidewinder missile outfitted with an improved homing head can be launched in the zone of possible attack at a  $150^\circ$  angle at the apex from the longitudinal axis of the target aircraft.

The foreign experts note that air battles, which have always been particularly complicated to conduct, have become even more complicated. In order to avoid being destroyed, it is no longer enough merely to prevent the enemy fighter from entering the rear half-sphere of one's aircraft, since the zone of possible attack has been expanded considerably and missiles can be launched effectively from practically any aspect. The range of the weapons has also increased significantly. Loss of the enemy aircraft from the pilot's field of view at a distance of 11-13 kilometers can result in destruction, whereas this would not have been highly important a few years ago.

According to the British magazine FLIGHT, the actions of a fighter pilot in the contemporary situation are made significantly easier by the installation of improved radioelectronic equipment such as radar and radioelectronic warfare equipment on board the aircraft. The former provides for automatic radar lock-on and tracking of air targets. The latter detects enemy launchings of missiles and generates interference for their homing heads. All of this enhances the fighter's survivability, but the outcome of the battle still depends ultimately upon the fighter's skill.

The foreign military press reports that one of the main directions for improving the fighter's characteristics in recent years has been that of increasing not the maximum flight speed, but maneuverability, mainly by increasing the thrust-weight ratio and improving the wing's lifting features. The F-16 Fighter, for example, can approach at great pitch angles for occupying an advantageous position for the attack, while retaining the controlled flight mode (the angle can be altered 55° instantaneously). The British Harrier aircraft possesses the same capabilities as a result of altering the thrust vector direction.

The NATO experts say that the new capabilities of "air-to-air" class guided missiles and their carriers have led to the problem of identifying aircraft at great distances. Before launching a missile at a target at intermediate or long range, the fighter pilot must be certain that he is attacking the enemy and not a friendly aircraft. They believe that it is dangerous for a modern fighter to approach the target in order to identify it, but that he will have to do this in aerial combat. Several methods are proposed for solving this problem. The simplest one is an attack by a pair of aircraft, one of which flies by the target at great speed and identifies it, while the other remains at a great distance from the target in a state of readiness to launch missiles. It is pointed out, however, that this tactic will require the use of an additional number of aircraft. Furthermore, it can lead to loss of the element of surprise, which is also very important.

According to reports in the foreign press, a new identification system is being developed to resolve this problem in the NATO nations. The military experts of that bloc point out, however, that even this kind of equipment does not ensure unequivocal determination of the aircraft's origin, since the absence of a response to the challenge could indicate the approach not just of an air enemy, but of a friendly aircraft with a malfunctioning identification system.

Experiments with the visual identification of air targets, using optical instruments coupled with the fighter's airborne radar, are being performed in Great Britain's military aviation. Such devices enlarge the image of an approaching aircraft and in the opinion of the British experts, will prove to be extremely effective.

The operating tactics of modern aircraft abroad are being designed on the basis of the above mentioned and certain other factors. Certain Western specialists propose that fighters can employ various types of maneuvering and tactical procedures, depending upon the situation which develops in the air battle, particularly in close combat. Certain of them are shown below from information published in the Western press.

The "breakaway" is used by a fighter which has lost its chance of succeeding in the air battle, in order to prevent the enemy from entering the zone of possible attack of his aircraft. It is performed with maximum acceleration and maximum thrust. An enemy attack may be thwarted by successfully performing this maneuver. The latter may carry out a countermaneuver.

Figure 2, on the left, shows the defensive maneuver "controlled roll" with a great turning radius and maximum acceleration. Its main objective is to deceive an attacker approaching the fighter at great speed. At a certain point the pilot takes his aircraft into a "controlled roll" with great turning radius and maximum possible acceleration. The fighter's flight speed gradually drops. Because of the great speed of approach, the enemy is simply not in a position to follow the attacker and shoots ahead. The aircraft exchange rolls after the maneuver has been completed. The Western press points out that it is highly important for the pilot of the maneuvering aircraft to correctly calculate the time for the beginning and the end of the maneuver, since a tardy pull-out from the "turn" may result in destruction, and if the maneuver is begun too early, the enemy can perform a zooming maneuver upon detecting it, thereby retaining an advantageous position for aerial combat.

The Western experts consider the "turn in a zoom" (Figure 2, Right) to be a complex type of maneuver. It is performed by a fighter approaching a maneuvering target at great speed or at a large aspect. The maneuver prevents the target from "shooting ahead." While gaining altitude, the fighter loses speed, and this reduces the turning radius in the upper part of the maneuver path.

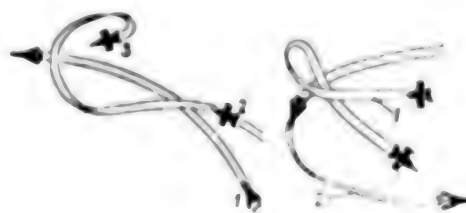


Figure 2. Left--"controlled roll" maneuver with large turning radius and maximum acceleration (1. enemy, 2. fighter before beginning the maneuver, 3. fighter after completing the maneuver); right--"turning in a zoom" maneuver (1. fighter's flight path, 2. target's flight path)

The magazine FLIGHT reports that in an air battle between aircraft with identical thrust-weight ratios and angular turning speed, a "semi-roll" with chandelle can be employed (Figure 3, left). It permits one of the aircraft to gradually occupy a more advantageous position than that of the other. The fighter's kinetic energy is increased by flying downward. The pilot then executes a "semi-roll" with a subsequent turn continuing until the target pulls out of the maneuver.



Figure 3. Left--"semi-roll" maneuver with chandelle; right--"roll" with subsequent lag (1. attacking fighter's flight path, 2. flight path of aircraft attacked)

On the right side of the same drawing is shown a "roll" maneuver with subsequent lag from the pursued aircraft. It was extensively employed by pilots of the Phantom fighters, which could execute a turn at great speed. The purpose of the maneuver is to enter the upper part of the enemy's rear half-sphere at a range of around 2 kilometers and with a greater turning radius than the enemy's. The foreign press points out that the attacking aircraft can hold this position a fairly long time (if it has the advantage of speed). The value of this maneuver lies in the fact that it is difficult for the enemy to observe the attacking fighter, while it is relatively easy for the latter to make a "roll" with an altitude gain and to take up an advantageous position for executing the attack. It is recommended that this maneuver be performed when the battle is occurring at too close a range and it is advantageous for the attacking aircraft to withdraw as far as possible from the target to make better use of its weapons.

The Western military experts recommend the "scissors" or "snake" (Figure 4, left) when a pilot detects a target flying a course parallel to his. The fact is stressed that if the pilot decides to accept the challenge, he will most frequently be forced to employ precisely that maneuver. As each of them makes the turn toward the enemy at minimum speed, he will attempt to fly his aircraft into the rear half-sphere of the other. Skillful piloting and use of the flaps and airbrakes of one's aircraft are considered to be highly important.

The combination of "scissors" and "roll" (Figure 4, right) is a more complex version of this maneuver. It involves a constant descent by the two aircraft, which turn relative to each other and to their longitudinal axes. The magazine FLIGHT stresses the fact that defeat will be the lot of that one which is the first to pull out of the dive, if the distance between the aircraft at that moment permits the use of the weapons--the guns, for example.

The foreign press reports that modern aerial combat can be not simply a duel, but a group battle. A pair of aircraft, spread 2 to 5 kilometers apart on the front, is the primary tactical unit in the fighter aviation of the NATO nations' air

forces. In the opinion of the NATO military experts, this arrangement provides the best conditions for mutual support, if an enemy aircraft makes an unexpected attack, and can be employed in flight on the route, while patrolling and during the execution of other missions in anticipation of an air battle. They maintain that an enemy aircraft can be rapidly identified and destroyed while retaining the integrity of the battle order. In such a case the priority mission is one of detecting the enemy aircraft, turning toward it, locking it in a "fork," identifying it and attempting to foresee its actions.

The following is considered to be one of the simplest methods of accomplishing the mission: heading one's aircraft toward the enemy so as to fly past it at minimum range, identify it and report to the lead aircraft. The foreign experts point out that the pilot of the oncoming aircraft ordinarily banks to determine what has flashed by. At that time the second fighter turns and head toward the enemy's rear (Figure 5, left). If the latter detects the pair of fighters approaching it in time, he can make a turn toward one of them. If the aircraft has been correctly locked in a "fork," however, the advantage will be with the fighters, since they can turn in opposite directions, and the fire from one of them may reach the target. The Western press calls this maneuver the "sandwich" (Figure 5, right)



Figure 4. Left--"scissors" maneuver; right--"scissors with roll" (1. fighter's flight path, 2. target's flight path)



Figure 5. Left--the "lock-on in a fork" maneuver by a pair of fighters, with one of them flying past the foreign aircraft (1. lead fighter; 2. wingman, 3. enemy aircraft); right--"sandwich" maneuver (1 and 2. fighters, 3. enemy)

If the enemy manages to avoid being locked in the "fork" (Figure 6, left), the fighter pilots will have to decide whether to continue the attack or withdraw from the battle and continue on their route. This depends upon the missions assigned them and the existing situation.

The magazine FLIGHT points out that in an air battle, especially a meeting battle, the battle order of the aircraft may take almost any form. It is felt that the mutual support principle can be disregarded, and the "front" battle order transformed into a "bearing" order. They may use the "eye-gunner" maneuver for attacking the enemy (Figure 6, right). Its objective is to identify and destroy the aircraft within a minimal amount of time, without permitting it to penetrate deeply into the air space being monitored. The first fighter (the "eye") performs the identification, and the second ("the gunner") destroys it.



Figure 6. Left--the enemy has noticed the fighters in time and evaded combat by maneuvering correctly (1. fighters, 2. enemy); right--"eye-gunner" maneuver (1. fighter performing identification--"eye," 2. fighter destroying target--"gunner," 3. enemy)

It is the opinion of the Western military experts that in an air battle between two fighters with identical technical specifications and armed with short-range guided missiles, the outcome depends in great part on the reciprocal positioning of the aircraft at the initial moment. If the total sighting angles of the two aircraft--that is, from the attacker to the target and from the target to the attacker--is  $180^\circ$  (the aircraft are on parallel meeting courses), it is impossible to fire the missiles effectively. When these angles are different and the attacking fighter approaches the tail of the target, there is an increased possibility of shelling it.

The foreign press reports that the results from the modeling of an air battle between fighters with similar characteristics on a bench simulator at the Aviation Scientific Research Institute of Great Britain's Air Force in the city of Wharton showed that the probability that the battle would end in favor of the attacking side increased with an increase in the angle of approach of the missiles. The same effect is produced by expanding the boundaries of the sighting angles when firing missiles at the front half-sphere. The foreign experts concluded, however, that when modern fighters are armed with all-angle missiles for close aerial combat, increasing the aircraft's acceleration specifications by creating a greater reserve engine capacity has a limited effect. The dominant factor, in their view, is the ability to execute a banking maneuver with maximum acceleration. According to reports in the foreign press, the USA and other members of the NATO bloc have developed a considerable number of types of maneuvers and technical procedures for engaging in aerial combat, taking into account the development of aviation technology, which are being tested in the combat training process. A great deal of attention is being given to developing in the pilots the skills necessary for selecting and performing them rapidly and correctly, as well as for withstanding prolonged acceleration.

COPYRIGHT: "Zarubezhnoye vovennoye obozreniye", 1985.

11499

CSO: 1801/166

## FOREIGN MILITARY AFFAIRS

### USE OF PHASED ANTENNA ARRAYS IN MODERN RADAR

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 1, Jan 85 (Signed to press 11 Jan 85) pp 58-62

[Article by Lt Col V. Pavlov and S. Grishulin: "Phased Antenna Arrays of Modern Radar Stations"; passages enclosed in slantlines printed in boldface]

[Text] The use of phased antenna arrays (FAR) as antennas for radar stations (RLS) for most diverse purposes has been receiving a lot of attention abroad in recent years. In the opinion of the foreign military experts, one of the main reasons for converting from conventional antennas with mechanical scanning to FAR with electronic scanning is a desire to produce multipurpose radar stations with inertia-free control of the radiation pattern's position, which makes it possible within a real timeframe to perform the missions of detecting, tracking, and identifying a large number of targets in the air and in outer space, as well as to perform a number of other functions - the transmitting of commands to guided missiles, for example.

The modern FAR used in the radar stations of the NATO nations are made up of a number of components consisting of radiating elements in the form of various types of oscillators, open terminals of waveguides, slots and so forth, which generate appropriately phased signals.

Inertia-free control of the radiation pattern's position makes it possible to scan an area according to set programs, to achieve optimal processes of detecting signals against a background of various kinds of interference, to reduce time and energy outlays, and to increase the handling capacity of radar stations by simultaneously generating a large number of rays. The foreign experts believe that two methods of tracking targets can be successfully combined in radar stations with FAR: in the first method, coordinates are measured without halting the scanning, while in the second, the rays are sent out to targets, the positions of which have been extrapolated from the results of preceding measurements, at moments in time set by the program. The coordinates in the area of the extrapolated points are determined with the prescribed accuracy in the multi-pulse mode by means of total-difference signal processing. Error in the measurement of angular coordinates can amount to 0.02 of the radiation pattern width.

According to reports in the Western press, practical realization of the advantages of the FAR only became possible after leading firms of the NATO nations developed and mastered a new technology for the production of electronic equipment and

developed such components as phase shifters, power dividers, amplifiers and generators which operate in various wave length ranges, as well as high-speed computers.

The foreign experts differentiate all types of FAR mainly according to the radiating element absorption principles. Specifically, in the classic arrangements of the antenna arrays, the energy emitted is generated by one or several powerful sources and is distributed among the FAR elements by means of power dividers, in the circuits of which phase shifters are used for controlling the position of the radiation pattern. The modular arrangement principle is being encountered more and more extensively of late in foreign use. High-frequency energy is generated by a large number of small, weak sources, each of which directly absorbs its own radiating element or group of elements. The fact that the output amplifiers in the transmitting part of these modules, as well as the preliminary amplifiers in the receiving part are located directly next to the radiating elements, makes it possible to operate at considerably lower power levels and as a result, to reduce to a minimum losses of energy from the radiating elements and the radar signals received.

The so-called classic arrangement of the FAR requires a relatively small number of power sources. The need to use a system for distributing the energy among a large number (from hundreds to tens of thousands) of radiating elements results in fairly large losses of high-frequency energy, and additional power must be generated to make up for them. As a result, an extremely large amount of energy is required for servicing the entire target flow in modern radar stations, which are occupying an increasingly important place in the military systems.

The Western experts calculate that as a result of the large number of elements, it costs more to generate the essential quantity of energy with the modular structuring of the arrays. Because it becomes possible to operate at a lower power level in FAR with the modular structure, however, it is possible not only to reduce total losses, but also to reduce the size of the power sources. In general, this may be preferable for the construction of multipurpose radar stations, especially long-range ones.

The modular principle for constructing FAR depends to a significant degree upon the technology for producing circuits with solid-state elements and requires radar operating modes with a high coefficient of charge, whereby the length of the radiated pulses must comprise 20-30 percent of the repetition period. It is the opinion of the foreign experts that this requirement makes it necessary to coordinate the energy of the signals emitted with the distance to the targets and with the size of their zone of dispersion (EPR). Furthermore, as a result of the radiation of pulses of long duration, the minimal effective range of the radar systems is limited, which in turn necessitates the probing of the space with pulses of lesser duration and alteration of the tracking period, proceeding from the requirement that the distance to the targets be positively determined.

The classic arrangement of FAR has been realized in the AN/FPS-85 and PAR long-range radar stations used by the American military, among others.

The /AN/FPS-85 FAR Station/ consists of transmitting and receiving arrays with the plane slanted  $45^{\circ}$  relative to the vertical. This makes it possible to scan a sector with an angle of elevation of  $0-10^{\circ}$  from the site. The ray can be deviated  $\pm 60^{\circ}$  relative to the normal plane of the array, which provides for a scanning sector of  $120^{\circ}$  by azimuth.

The transmitting array for this radar station is in the form of a square around 30X30m, on which 5,184 (72X72) radiating elements are arranged. These are resonant dipoles with passive director, which function with vertical polarization. The elements are distanced from each other by around 0.5 $\lambda$  of the wave length, which is approximately 40 centimeters for the working range of emitted frequencies. The FAR aperture provides even amplitude distribution of the electromagnetic field, which makes it possible to form a radiation pattern 1.4 $^\circ$  wide. Every FAR element absorbs high-frequency energy from its source. Tetrodes with a pulse power of 10 kilowatts are used as the source. They comprise the basis of the transmitting modules, each of which is 173X228X738mm and weighs 23 kilograms.

The receiving array is in the shape of a regular octagon with a definition area of around 60 meters and contains 19,500 cross-shaped dipoles (the figure is set at 39,000 elements in certain Western press sources). All of the elements are assembled into sub-arrays, which are connected to receiving modules 76X248X437mm in size and weighing 5.4 kilograms.

In the search and detection modes, the FAR forms a matrix of nine rays 0.8 $^\circ$  in size and intersecting at the level of 0.4 $^\circ$ . Only the central and four criss-crossing rays are activated in the target tracking mode, which makes it possible to apply the monopulse method of determining coordinates. Specialized electronic computers control the FAR's operating modes. The parameters are kept within the prescribed limits by maintaining a constant temperature with a precision of  $\pm 3^\circ$  C. It is also reported that this structure of the FAR for the AN/FPS-85 radar is capable of withstanding winds of up to 230 kilometers per hour.

/In the FAR of the PAR station/, the very same elements are used for transmitting and receiving radar signals. The plane of the array is around 30 meters in size and is inclined 30 $^\circ$  from the vertical, which makes it possible to scan an area with an angle of 0-90 $^\circ$  from the site. The ray's deviation from the horizontal plane, depending upon the operating mode, can be 60-70 $^\circ$  relative to the normal plane of the array, and an area between 120-140 $^\circ$  by azimuth can be scanned.

The FAR aperture contains 6200 elements which functions with horizontal polarization. Traveling-wave tubes with a pulse strength of 1.1 kilowatts are used as the source of high-frequency energy in the radar station. The phasing of this signal is achieved by means of four-digit digital phase shifters. The front of the antenna array is believed to be capable of withstanding excess pressure of around 2.1 kilograms per square centimeter.

The new generation of phased antenna arrays for radar stations are mainly modular. The /FAR of the AN/FPS-108 Cobra Dyne station/, for example, consists of 96 sub-arrays, each containing 160 active elements connected in the transmitting mode to the outlet of a traveling-wave tube with a pulse strength of 160 kilowatts, which is evenly distributed among them. In the receiving mode the sub-array outlets are connected to parametric amplifiers. The formation of the field distribution function by Taylor's law, which makes it possible to significantly reduce the radiation level in the side vanes, is achieved with an uneven distribution density for the active elements at the center of the FAR and on its periphery. The process is also assisted by the presence of a large number of passive elements (19,408). The FAR is around 29 meters in size, which makes it possible to form a radiation pattern 0.6 $^\circ$  wide in the operating frequency range (1175-1375 megacycles). Unlike this

FAR, the /array of the AN/SPQ-11 Cobra Judy radar/ contains only 12,288 active elements and has a diameter of around 7 meters.\*

It is the opinion of the foreign experts that the /AN/FPS-115 Pave Paws/ is one of the radar stations which embodies all of the latest achievements in FAR development. The principle of construction entirely with solid-state elements has been realized in it. The radar station has a total of 1,792 receiving and transmitting modules, each of which is 30X20 centimeters. They are connected to active elements (Figure 1 /graphics not reproduced/) combined into 56 sub-arrays (32 elements each) arranged over an area of around 400 square meters on the array plane, which corresponds to a FAR with a diameter of almost 22 meters. The 885 passive elements are also located in this space. The sub-arrays are not identical in size.

Special coaxial joints are used for connecting the receiving and transmitting modules to the radiating elements, which make it possible to increase tolerance in the manufacture of the array's mechanical parts. Powerful transistors are used as the element base (there are 3500 in the radar station). They have a junction temperature of no more than 140°C. The transmitting and receiving parts of the modules are on separate supports, and they can operate an average of 220,000-250,000 hours without breakdown. The foreign experts estimate that the parameters of the Pave Pos radar station is not significantly altered if up to 200 receiving and transmitting modules stop functioning.

According to reports in the foreign press, the diameter of this station's FAR can be increased to 31 meters, which would permit it to hold twice as many elements, and all of the elements can be made active for purposes of increasing the pulse emission and average power. At the present time the pulse power is 585 kilowatts, the average power is 145 kilowatts, and the range for detecting targets with an effective dispersion area of 10 square meters is as great as 5500 kilometers. The Western experts believe that if the number of active elements is increased to 5,354, it can detect a target at the same range with a smaller effective pulse dispersion area. Two identical FAR's set up at a certain angle to each other in the radar station provide for scanning a sector 240° in azimuth. The scanning sector angle is 82° at the site (from 3 to 85°).

The /AN/TPS-59/ ground-based transportable station/ designed by the American General Electric company is another example of a radar detection station with the FAR made totally of solid-state elements. Its antenna system is a flat FAR consisting of a center part containing the electronic blocks and two side parts connected to the center by means of flexible, high-frequency coordinating elements, which make it possible to transport the antenna folded up (Figure 2). In its deployed (combat) state, it is 4.6X9.2m, which makes it possible to form a radiation pattern on an azimuthal plane of 3.2°, and an angle-of-elevation of 1.7°. The radiation pattern of the FAR is controlled with electronic scanning by the main ray in a sector with an angle of elevation of 0 to 19°, with the antenna rotated mechanically for azimuth.

The FAR of the AN/TPS-59 station consists of 54 horizontally arranged linear sub-arrays, each of which contains 24 radiating elements connected directly to the receiving and transmitting antenna modules. The radiating elements are oscillators

\*For a more detailed discussion of the Cobra Dyne and Cobra Judy radar stations read ZARUBEZHNOYE VOYENNOYE OBOZRENIYE, No 1, 1984, pp 59-62.--Editor

in waterproof (sealed) shells, which are supported by special partitions forming the waveguide powerline. The American experts believe that this design has made it possible to provide electrical insulation between the radiating elements, to reduce the spread of the antenna system and reduce to a minimum the possibility of its icing-up. The maximum stress on the FAR is around 17 kilograms per square meter at a wind speed of up to 130 kilometers per hour.

The transmitting module of the FAR (there are 120 in the radar station) consists of a transistor amplifier with an average output power of 50 watts (the station's average emitting power is around 6 kilowatts). These modules produce two kinds of signals--simple pulse signals for detecting targets at short range and pulses with linear frequency modulation for ranges of more than 180 kilometers. The output stages of the transmitting device and the pre-amplifiers in the receiving section of the radar station are connected with the radiating elements by three feeder power systems, which maintain contact with the summation and difference channels, as well as with the channels used for distributing the signals among the antenna sub-arrays of the FAR.

The antenna switches, developed on the basis of five-stage filters, protect the pre-amplifiers of the receiving modules and the responders, which are on band lines filled with air. This makes it possible to reduce actual losses in the transmission and reception to 0.38-0.75 decibels.

The operating modes of the radar station are controlled by means of the AN/UYK-7 electronic computer, which makes it possible to simultaneously detect and track up to 500 targets with an effective dispersion area of 1 square meter at a range of up to 550 kilometers. The probability of correct detection in one turn of the radar antenna is 0.7, with an average of five false alarms.

Micro-band devices on 52.6X44.5X12.7mm (polikorovyie) supports are used as the phase shifters. They provide for a phase adjustment precision between  $1.2^\circ$  and  $0.4^\circ$ . The entering losses amount to no more than 2.6-3.12 decibels. The FAR's receiving modules are set on micro-band lines with fluoroplastic dielectric supports, which provides actual amplification of 23-24.5 decibels with a noise factor of 2.2-2.4 decibels.

It is felt that the modular design of the FAR provides the AN/TPS-59 station with a high degree of operating reliability and permits it to operate even if certain modules stop functioning. In tests with around 50 percent of the transmitting modules not functioning, the radar station was able to track A-4 Skyhawk ground attack aircraft at a range of up to 165 kilometers with the necessary accuracy.

The ground-based /GE-592 (Figure 3) and AN/TPS-117 stations/ have now been developed out of the AN/TPS-59, which can operate with minimal maintenance or none at all at sites with harsh climatic conditions--in the USA's Alaskan Air Defense Region, for example.

The phased arrays of these radar stations are modeled after the FAR of the AN/TPS-59 station and are 4.2X4.2m when deployed, which makes it possible to form a radiation pattern  $2^\circ$  wide on the azimuthal and elevation planes. The FAR consists of 44 horizontally positioned, linear sub-arrays, each of which contains 36 radiating elements directly linked by antenna switches to the transmitting and receiving

modules. The transmitting module is a device which includes one preliminary and six terminal amplifiers with transistors. The module's average output power has been increased by 100 watts.

The American experts believe that a high level of operational reliability has been achieved for the GE 592 and AN/FPS-117 radar stations by using a built-in monitoring system, as well as two parallel-operation electron computers. Although these stations function in an automatic mode, they include work stations and control panels for operators, designed for using the radar stations in combat conditions and in a situation of radio counteraction. The radar station's system for selecting moving targets makes it possible to detect air targets against the background of the earth's surface and provides for increasing the signal /interference ratio by 50 decibels when operating in a situation of interfering reflections off local objects and around 30 decibels in a situation of interference from hydrometeors.

Judging from reports in the foreign press, work in the area of FAR development is also being carried out on the use of methods of frequency control of the radiation pattern. It is believed that the designing of FAR's for such radar stations is simpler and less expensive than when the phased method is used for controlling the radiation pattern, and when solid-state technology and modular construction are used for the antenna system.

The /S.320 station/ is an example. It is planned to use this station in the air defense systems of a number of European NATO nations, as well as in the base system for creating the AR320 radar station for Great Britain's air defense system. Its antenna array is a flat 5.1x4.3m FAR, which operates on the 10cm waveband. The surveillance of a space is accomplished with frequency scanning of the radiation pattern on the elevation plane by resetting the carrier frequency, with mechanical rotation of the antenna system on the azimuthal plane.

The FAR of the S.320 station consists of 76 horizontal, linear sub-arrays arranged vertically, with one of the sides of each connected to a zigzagging waveguide arranged along the vertical side of FAR. The features and dimensions of this waveguide define its capabilities for controlling the radiation pattern in the elevation plane. The main function of the waveguide is to distribute the high-frequency energy among the linear sub-arrays. The design of the power waveguide, the foreign press states, makes it possible with the FAR vertical, to distribute the energy and shape the radiation pattern in accordance with Taylor's law, with the level of the side vanes at around 30 decibels.

The transmission of the high-frequency energy from the power waveguide to the linear sub-arrays is accomplished by means of slotted communication elements located in the narrow part of the waveguide. The dimensions of these elements are coordinated with the amount of high-frequency energy entering the linear sub-arrays. Inductive diaphragms located within the power waveguide are used as the coordinating elements. Each of the sub-arrays consists of a waveguide around 4.3 meters long, with 30 radiating elements in the form of slotted oscillators located in its narrow portion. Electronic control of the radiation pattern for angle of elevation is accomplished by resetting the frequency of the radar station's transmitter within a range of 2900-3100 megacycles. An amplifier on a travelling-wave tube with grid control is used as the transmitter's output stage. Preliminary amplification of the signal is accomplished by an amplifier made of solid-state elements.

Antenna systems in the form of FAR's for ground radar systems have recently started to be used not only in stationary, long-range radar, but also in mobile sets designed for detecting low-flying targets. For example, the /TRMS station/ (Figure 4), which was developed at the end of the 70's by the AEG Telefunken (FRG) and Hughes (USA) firms, has a 2.5X2.9 meter antenna array, which forms a radiation pattern  $1.4^{\circ}$  wide for azimuth and  $1.6^{\circ}$  for angle of elevation. The body of the FAR is installed on a telescopic mast at a  $15^{\circ}$  angle relative to the vertical and makes it possible for the radar station to scan a space of 0- $45^{\circ}$  for elevation electronically, and azimuthally, by mechanical rotation of the antenna at a speed of 3-12 turns per minute. Programmed alteration of the antenna's rotating speed for azimuth during one rotation of the FAR is also provided for.

Depending upon the angle of elevation, the cross section of the main ray in the FAR's radiation pattern changes from round (at small angles of elevation) to elliptical, and the vertical width of the ray can increase 8-fold. This, in combination with alteration of the repetition frequency for the sounding pulses, makes it possible to achieve rapid renewal of target data within the radar station's scanning zone.

The FAR contains around 4,000 radiating elements. The transmitter's output stage is set on amplatron. The phase of the radiated signal and the radiation pattern on the elevation plane are controlled by means of ferrite phase shifters located in the array surface. The antenna for the identification system and the antenna for the channel for suppressing emissions received by the side vanes of the antenna array, azimuthally and by elevation angle, are located on the radar system's antenna column along with the main FAR. The functioning of the TRMS radar station is accomplished by means of the universal AN/UYK-15 minicomputer, which also processes the radar information received.

COPYRIGHT: "Zarubezhnoye voyennoy obozreniye", 1985.

11499

CSO: 1801/166

FOREIGN MILITARY AFFAIRS

'DOBAS-84' EXERCISE DISCUSSED

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 1, Jan 85 (Signed to press 11 Jan 85) pp 69-70

[Article by Maj M. Men'shikov: "The DOBAS-84 Exercise"]

[Text] In the spring of 1984 an exercise by NATO's Joint Air Forces in the Central European Theater of Military Operations was held for the first time in the FRG. It involved the activation and support of dispersion airfields and was called DOBAS-84 (DOBAS stands for Deployment Operation Base Activation and Support).

The objective of the exercise was to test plans for the dispersal and organization of all types of support for the combat operation of bloc nations during a period of "danger" and at the beginning of a war. Staffs, tactical and transport air subunits, air defense personnel and facilities, and rear service agencies of the air forces of the FRG, the USA, Great Britain and the Netherlands took part, as did personnel and facilities of certain West German civilian departments. The exercise was directed by Lieutenant General E. Eimler, commander of the FRG Air Force.

The following missions were practiced in DOBAS-84: the transfer of tactical aircraft to reserve military and civilian air fields, as well as to specially equipped sections of the Autobahn; to test the capabilities of combat and transport aircraft for making flights from shortened and partially damaged runways; to organize air defense and ground defense of alternate air fields and technical air field and rear service support for the air subunits based there; to assess the capabilities of rear service agencies for supporting the operations of dispersal air fields in conditions as realistic as possible and to check interaction among them and between them and civilian organizations.

A squadron of Alpha Jet aircraft of the FRG Air Force was relocated at the alternate military air field Diebholtz, which has a runway of nonstandard length, and combat and transport aircraft of the air forces of the FRG (Tornados, Alpha Jets and C-160s), the USA (F-15s, A-10s and C-130s), the Netherlands (NF-5As and F-16As) and Great Britain (Jaguar-GR.1s) were received and serviced for 3 weeks on a 2100m section of the Alchon-Sage Autobahn. A demonstration of the functioning of both air fields was conducted in the final phase for representatives of the military-political leadership of the FRG and NATO. During the period of 1 hour and 15 minutes 14 combat and four military transport aircraft made landings on the section of the Autobahn. After unloading, refueling and replenishing their ammunition supply, 13 (10 and 3 respectively) of them took off again. There was also a

demonstration of the Tornado, a West German tactical fighter outfitted with engines with thrust reversal. It made a landing, braked until it came to a complete halt and then took off again in the same direction.

The materiel and personnel of the servicing subunits were hauled to the dispersal air fields on transport aircraft and motor vehicles. Loading and unloading equipment, filling and charging machines and devices were extensively used to reduce the time required for repairs, postflight maintenance and preparation of the aircraft for the next flight. It took no more than 15 minutes to install an engine on the Alpha Jet aircraft as a result, and the total amount of time the four aircraft of this type spent on the ground being prepared for the next flight (including refueling, replenishing of the ammunition supply and a 1.5-minute warm up of the engine prior to takeoff) did not exceed 17 minutes. A C-160 aircraft was unloaded in less than 15 minutes.

The Western press pointed out that the training missions were performed during the exercise under the threat of "enemy" attack, and the actions of enemy aircraft were simulated by reconnaissance aircraft and fighter-bombers from NATO's Joint Air Forces in the Central European Theater of Military Operations. Subunits of 20mm antiaircraft guns were airlifted by helicopter to provide air defense for the dispersal air fields, and their ground defense was provided by West German airborne subunits. Interceptors were used for covering flights from the air. The organization of repair and restoration work on the runway, camouflaging with smoke and nets, the deactivation of unexploded ammunition and the emergency evacuation of aircraft, using special equipment, were also practiced at the dispersal air fields.

According to information published in the foreign press, NATO's military leadership attached great importance to the DOBAS-84 exercise and gave a high rating to the results. It believes that the exercise demonstrated a high level of training for the various categories of personnel and increased capabilities for the new models of weapons and combat equipment. Certain shortcomings were also revealed. Among other things, the exercise confirmed the conclusion that reserve air fields set up on sections of the Autobahn have limited suitability for the prolonged basing of aircraft, primarily as a result of inadequate parking room and the absence of taxiways. Statements by Western military experts indicate that the experience from this exercise will be used to test plans and concepts for dispersing the tactical aviation, as well as for specifying the requirements for the landing and takeoff and the technical specifications of future models of aviation equipment.

COPYRIGHT: "Zarubezhnoye vovennoye obozreniye", 1985.

11499

CSO: 1801/166

AFGHANISTAN

TASS CITES BAKHTAR ON U.S. 'SLANDEROUS CAMPAIGN' AGAINST DRA

LD191408 Moscow TASS in English 1355 GMT 19 Mar 85

[Text] Kabul, 19 Mar (TASS)--The consolidation of the people's power in the Democratic Republic of Afghanistan (DRA), the Afghan people's achievements in various spheres of social, economic and cultural life, and their successes in the fight against the counterrevolutionaries have invoked the wrath of the enemies of the April revolution, says a BAKHTAR news agency's statement circulated here.

The United States has resorted to another slanderous campaign for the purpose of distorting the real state of affairs in Afghanistan and justifying its interference in the republic's internal affairs. The United States has managed to put a resolution on the so-called "human rights situation in Afghanistan" through the UN Commission on Human Rights. The "report" of the man named Armakorea, the so-called special spokesman of the human rights commission on Afghanistan, was used as a base material for the resolution [sentence as received]. In the report, the emphasis is laid on "data" received from Afghan counterrevolutionaries and on inventions by the Pakistani authorities which have turned their country into a base for the imperialist aggression against the DRA.

The presentation of the Armakora report to the 40th session of the UN General Assembly and to the 42d session of the UN Human Rights Commission, combined with the above-mentioned resolution, is another attempt by the United States to give an international dimension to the alleged "breach of human rights in Afghanistan" and thereby to divert attention from U.S. aggressive actions against Lebanon, Grenada, El Salvador, and Angola where the United States most flagrantly violates all basic human rights. The aim of such reports and resolutions is to try to cover up the real face of those who wage the undeclared war against the Afghan people, BAKHTAR points out.

CSO: 1812/200

AFGHANISTAN

TASS: KABUL URGES END TO U.S.'INTERFERENCE'

LD191556 Moscow TASS in English 1534 GMT 19 Mar 85

[Text] Moscow, 19 Mar (TASS)—TASS political news analyst Askold Biryukov writes:

A recent press conference in Kabul for local and foreign journalists has confirmed with utmost certainty once again the fact of increasing armed interference by imperialism and international reaction in the affairs of sovereign Afghanistan. As was pointed out at the press conference, the Washington administration has assumed direct guidance over the undeclared war against revolutionary Afghanistan. It provides hundreds of millions of dollars every year to equip and train armed counterrevolutionary formations and send them into the territory of the Democratic Republic of Afghanistan. According to the Afghan news agency, BAKHTAR, the number of American "advisers" and specialists in sabotage, who are training bandits in more than 120 camps in Pakistani territory, has reached 318.

Killers and saboteurs are now being trained also in the territory of the United States itself and at the Pentagon's bases in other countries.

The closest "strategic allies" of the United States, notably Tel Aviv and Islamabad, are also increasing their contribution to the undeclared war. BAKHTAR reported that Pakistan, which has long been turned by the United States into the main staging area for aggression against the Democratic Republic of Afghanistan, has given consent to the setting up of a special school in its territory under the aegis of the CIA to train military personnel for Afghan counterrevolution. The Pakistani military and special services are also taking an active part in training of terrorists and their infiltration into Afghan territory. Islamabad has readily made its territory available for psychological warfare against Afghanistan.

Attention at the Kabul press conference was also called to another important fact, namely to large-scale attempts by Washington and American and other propaganda agencies obedient to it to disinform international public opinion, distort the democratic change which is under way in the Democratic Republic of Afghanistan in the interests of the Afghan people, and cast aspersions on friendly Soviet-Afghan relations and the Soviet Union's internationalist assistance to people's Afghanistan. These attempts, as was pointed out in Kabul, have included the U.S. President's arrogating of the right to proclaim "Afghanistan days" aiming to escalate the massive smear campaign against the DRA.

The aggressive actions of external forces against that country, which have continued nonstop for several years now, have meant spilt blood and suffering for common people. These actions have been steadily exacerbating the situation in that part of the world. It is not accidental that these actions have been increasingly condemned by the world's peace-loving public. For the sake of strengthening peace and stability in the region and Asia as a whole it is necessary to cut short the military intervention and any other outside interference in the affairs of people's Afghanistan. The Afghan people's right to build their life as they see fit is unquestionable.

CSO: 1812/200

AFGHANISTAN

TASS CITES KRASNAYA ZVEZDA ON U.S. AID TO AFGHAN REBELS

LD210830 Moscow TASS in English 0814 GMT 21 Mar 85

["The Biggest Clandestine Operation"--TASS headline]

[Text] Moscow, 21 Mar (TASS)--The Reagan administration is making fresh attempts at justifying in the eyes of the world public the undeclared war which it is waging against democratic Afghanistan, Viktor Vinogradov, a political news analyst, points out in the newspaper KRASNAYA ZVEZDA. To this end the U.S. Information Agency (USIA) staged recently in its international "Worldnet" television network system a clearly provocative programme on the "situation in Afghanistan." The authors of that television performance had recourse to shameless lies in an attempt to discredit the policy of the current Afghan Government and at the same time picturing the counter-revolutionary rabble engaged in a base war against its own people as "freedom fighters." Moreover, in Washington all sorts of anti-Afghan assemblages are staged regularly and the so-called "Afghanistan Day" is held every March.

One must have a great power of imagination or simply be able to lie shamelessly to picture these inveterate bandits on the payroll of the U.S. CIA as "fighters for the liberation of their homeland."

It is apt to recall that the Afghan counterrevolutionaries, who are, in actual fact, mercenaries of imperialism, have according to official data issued in Kabul, destroyed 814 school buildings, 31 hospitals, 906 peasant cooperatives, 14,000 metres of telephone lines and many bridges. Direct damage from their criminal activities has topped 35,000 million Afghanis. In attacking peaceful villages the bandits do not spare the lives either of children, or women and old people.

Reports are reaching from Pakistan that the headquarters of various Afghan counterrevolutionaries in Pakistan's territory are drawing up plans for new acts of subversion in Herat, Kandahar, Badakhshan and other provinces of the Democratic Republic of Afghanistan. The chiefs of counterrevolutionary gangs openly declared at a press conference in Islamabad their intention to step up acts of terrorism in Afghanistan's territory. In so doing they do not conceal that the fresh bloody crimes are planned with the participation of American "advisors."

Washington is, certainly, doing its utmost in an attempt to camouflage its criminal actions. United States Deputy Assistant Secretary of State Raphel, who appeared on the television programme sponsored by USIA, hypocritically said that Washington intended to increase in every way possible "humanitarian aid" to the so-called Afghan refugees. He also admitted that the United States would do everything necessary to support the forces opposing the people's power in Afghanistan. American Senator Jim Sasser, notorious for his reactionary views, has made it clear, that the supplies of modern weapons, including air-to-ground missiles are to be increased soon.

But even without that increase, the newspaper WASHINGTON POST wrote, quoting usually well-informed officials, the CIA's secret aid to rebels in Afghanistan has turned into the biggest clandestine operation of the United States since the Vietnam war. The U.S. Congress, the newspaper points out, has sharply increased appropriations by setting aside with these aims 250-280 million dollars in fiscal year 1985. On top of that, some other countries are planning to appropriate another 200 million dollars for the bandits.

CSO: 1812/200

7 May 1985

## AFGHANISTAN

## MOSCOW SAYS WESTERN REPORTS ON DRA 'FAKED DELIBERATELY'

LD162000 Moscow World Service in English 1710 GMT 16 Mar 85

[Text] The Western Press carries many dramatic reports about events allegedly taking place in Afghanistan. In the following commentary, those reports are examined by Mikhail Glebov:

Most articles feature the allegations that fierce fighting is going on and the situation is very tense everywhere in Afghanistan. The policy of the Afghan Government is presented in the worst light and most unbelievable things are imputed to it. The only source quoted by the Western press are antigovernment forces; sometimes for the sake of variety references to some diplomats or travellers are made but those are never identified. But the gloomy picture presented by unidentified witnesses is disproved by real people with names. Those are correspondents who come to Afghanistan and search for true facts to compare the actual situation in the country with what the Western media reports.

One of those journalists is Philip Jacobson of Britain. He came to check the insurgents' report that the Afghan forces had completely destroyed the village of Golbahar. He came to the site and saw the village absolutely unharmed. On another occasion Jacobson actually had a chance to see how false information was being produced. Here is what happened. A group of Western diplomats were playing golf in Paghman, a beautiful town near Kabul. Suddenly several helicopters flew over them toward the Paghman hills. The diplomats were later told that a minor operation had been conducted there against a unit of insurgents who had come from the hills. The diplomats passed the information on to the newsmen. They were amazed to see the report in the press 2 days later with many impressive details added and with a claim that a 20,000 strong force of insurgents had been concentrated near Paghman preparing an attack on Kabul. So government helicopters were put on the round the clock patrol. Needless to say no one attacked the Afghan capital and the impressive details were all simply invented.

Another such case was described by an American journalist, John (Arvath), in an article he wrote for the West German daily DIE WELT, and this is what he wrote: A Western diplomat told a newsmen in Pakistan that his country's embassy in Kabul was reporting fierce battles for the Kabul airport. The WASHINGTON POST immediately carried a big front page article featuring the news. There was just one inaccuracy about the whole thing, no one ever fought any battles for the Kabul airport.

In a word, the sensational reports from the Western press concerning Afghanistan invariably carry nothing but false information. And it would be wrong to think that the false reports appear simply because gullible Western newsmen are fooled by cunning insurgents. No, the reports are faked deliberately in accordance with instructions from Washington and other Western capitals. This is proved by a telegram that the managers of the French press agency recently sent to the agency's office in Pakistan. The telegram was later obtained by the press and published in Paris papers. It contained directives to the agency staff that left no room for doubts or misinterpretation. We have learned from well informed sources, the telegram said, that the losses of the Afghan Government's troops are bigger than they are believed to be and that the insurgents are intensifying their attacks. We want reports on this as soon as possible.

Predictably this directive caused a flow of reports from Pakistan, reports adorned with most fantastic details. All this shows that a real psychological war is being waged against the Democratic Republic of Afghanistan and that war involves the use of the dirtiest methods. A few Western governments, with the American Administration in the lead, have been working for several years to kill the Afghan revolution just because they disapprove of it and their campaign of deliberate slander is intended to reach [as heard] the same purposes as the shipments of Western munitions to the counterrevolutionary terrorists.

The false reports are intended to keep tensions high in Afghanistan and to discredit the new Afghan Government by presenting it as a force that lost touch with the nation. But more and more people come to Afghanistan and what they see there is quite the opposite: the nation supports the government and its large-scale democratic transformations. Even CIA experts had to state in a recent memorandum that the revolution in Afghanistan had become the cause of the whole people.

CSO: 1812/200

END

**END OF**

**FICHE**

**DATE FILMED**

28 MAY 85